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I.—STICHOMETRY.

Introduction.

The following investigations have been undertaken in the hope of obtaining some critical conclusions with regard to the extent of early documents, chiefly Biblical, from the apparently insignificant, yet highly important data furnished by certain numbers appended by ancient scribes to the books which they copied. It is only lately that I have come to regard, with any other feeling than complacent pity, the labors of those Masoretic editors of the Hebrew Bible who so carefully inform us as to the number of verses and the points of bisection of the separate books; the natural impulse of one's mind being towards the conclusion that such work might perhaps be agreeable at some period of involuntary incarceration accompanied by a most plentiful lack of books. The Masoretes themselves, however, seem to have been sensible of the importance as well as of the arduous nature of the work of book-measuring, since they preface their annotations with the word פִּתּוּ, which is generally understood to be an encouragement (*fortis esto*) either to themselves or their readers. How much more strongly would they have expressed themselves if their task had been, like ours, the inverse problem of restoring the ancient books from their accredited measurements! Doubtless their sympathy would have flowed (after the approved Rabbinic fashion, which I remember to have noted somewhere), in votive offerings of midnight oil for the labors of the devoted calculator.

Nature of Stichometric data.

The first part of this enquiry is retrospective, and consists in the accumulation and estimation of the principal results arrived at by modern philologists, with regard to the form of the early books and the manner of the ancient scribes; and these conclusions are presented as far as possible in an orderly form. The stichometric data which we obtain from MSS, or from early quotations of various writers, chiefly Greek and Latin, are frequently nothing more than pure numbers, sometimes followed by the word *στίχοι*, or an abbreviation of the same, and sometimes accompanied by additional information as to the number of leaves (*φύλλα*) or of columns (*σελίδες*) which were transcribed. For example, the MS N—103 of the National Library at Madrid informs us, at the close of the 5th book of Oppian's *Halieutics*, that the book contained $\overset{\lambda\lambda}{\phi\nu} \overset{\chi}{\iota\delta} \overset{-}{\sigma\tau\iota} \overset{-}{\chi\omicron\eta}$, and similar annotations are found at the close of each of the separate books; *i. e.* the 5th book contains 14 leaves and 678 verses, results which Iriarte (*Reg. Bibl. Matritensis*, Cod. Gr. p. 408) could not harmonize with the MS or the text. The inference is that the archetypal copy whose numeration and pagination have been transmitted was composed of 14 leaves, each of which contained 50 verses, with the exception of the last, which had only 28 verses.

Their Antiquity.

That stichometric measurements are of great antiquity will appear from the following considerations: M. Weil has recently published fragments of Euripides from a papyrus¹ of the second century before Christ, the first of which comprises 44 lines of an unknown play, and at the close the words *Στίχοι ΜΔ*. The importance of this document for our purpose is evident; it not only establishes the antiquity of the custom of counting and appending the number of lines of a poem or portion of a poem, but the enumeration is made in the ordinary Greek manner.

Similar annotations are found on the margin of the Papyrus Bankesianus of the *Iliad*.

The Herculanean rolls provide us with abundant instances of the same usage; here we find prose writings enumerated in a manner similar to poems, and frequently the older form of Greek

¹ Un papyrus inédit de la bibliothèque de Firmin-Didot. Paris, 1879, p. 6.

numeration presents itself, as, for instance, n. 1027 (ed. Oxon.) has the subscription

—
ΚΑΡΝΕΙΣΚΟΥ ΦΙΛΙΣΤΑ Β. ΑΡΙΘ. XXXHHΔΔΔΠΠΙ,

which implies that a certain portion of the writings of Karniskus contains 3238 verses. What these verses represent in *prose* writings is a problem presently to be considered.

Other instances of the preservation of the more ancient Greek numeration may be seen in the MSS of Herodotus, Cod. Laurentianus LXX 3, and Cod. Angelicanus C 1, 6, and in several important MSS of Demosthenes.

Stichometry earlier than the Alexandrian Library.

It is sufficiently evident that the custom of measuring literary works by *στίχοι* is coeval with literature itself, and instances may be given which establish the continuance of such measurements, both for prose and verse, down to the twelfth century, if not later. It is possible, however, that these more modern subscriptions are to a great extent traditional measurements from an earlier time. Ritschl,¹ in his important researches on the subject of stichometry, came to the conclusion that Callimachus, of the Alexandrian Library, was the inventor of the stichometric method; the chief authority for such a statement is found in the following extracts from Athenaeus:

Τοῦ Χαιρεφῶντος καὶ σύγγραμμα ἀναγράφει Καλλίμαχος ἐν τῷ τῶν παντοδαπῶν πίνακι γράφων οὕτως· Δεῖπνα ὅσα ἔγραψαν· Χαιρεφῶν Κυρηβίωνι· εἰς ἑξῆς τὴν ἀρχὴν ὑπέθηκεν· Ἐπειδὴ μοι πολλάκις ἐπέστειλας· στίχων τοῖ. Athen. VI, p. 244 A.

Ἀνέγραψε δὲ αὐτὸν (νόμον τινὰ συσσιτικὸν) Καλλίμαχος ἐν τῷ τρίτῳ πίνακι τῶν νόμων, καὶ ἀρχὴν αὐτοῦ τήνδε παρέθετο· Ὅδε ὁ νόμος ἴσος ἐγράφη καὶ ὁμοιος· στίχων τριακοσίων εἴκοσι τριῶν. Athen. XIII, p. 585 B.

It will be evident, however, that these quotations really imply nothing more than a general statement that Callimachus entered books under certain catalogues, in which were found, with the name of the author and the title of the book, the first line of its contents, and the number of lines. And M. Graux² has pointed out that we have evidence anterior to Callimachus of the existence of prose works measured by their author in *ἔπη*, which is

¹ Opusc. Philolog. I, p. 84.

² Revue de Philologie, April, 1878, p. 97.

practically an interchangeable term with *στίχοι*. The reference is to Photius, cod. 176, p. 120, where, discussing the writings of Theopompus, we find οὐκ ἐλαττόνων μὲν ἢ δισμυρίων ἐπὶ τὸν ἐπιδεικτικὸν τῶν λόγων συγγραφεύμενον, πλείους δὲ ἢ ἑκατομυριάδας ἐν οἷς τὰς τε τῶν Ἑλλήνων καὶ βαρβάρων πράξεις μέχρι νῦν ἀπαγγελλομένας ἔστι λαβεῖν . . . ταῦτα αὐτὸς περὶ αὐτοῦ λέγων κτέ. Here then we have the personal statement of a writer, nearly a century previous to Callimachus, as to the stichometric measurement of the extent of his books. We shall frequently have occasion to refer to the researches of Ritschl and Graux, which are the basis of all modern investigations on stichometry.

Existence of a sensibly constant στίχος.

Assuming, then, the fact of such measurements, by means of which the separate works of a writer are determined, added together, and compared with works of other writers, we ask how such measurements and comparisons were possible, unless there were somewhere an approximately constant element or standard of reference.

We might, indeed, compare the works of Homer with the tragedies of Sophocles, because the mention of the number of lines in each case is, with the exception of the choruses, made in terms of two constant units, the hexameter and the iambic trimeter, and the mind is perfectly capable of reducing one of them to the equivalent proportion of the other. But what possible light is thrown upon the comparative lengths, for instance, of a book of the Iliad, and the Antiquities of Josephus, when we are told by that writer that his work contains 60,000 *στίχοι*, and have no access to the MS in which he measured them?

It becomes interesting, therefore, to examine whether the word *στίχος* is ever deflected from its simple and indefinite meaning of line or verse into any special meaning which may identify it as a standard of length, suitable for times when the uniformity of printed editions was unknown.

Normal meaning of στίχος.

As we have said, its normal meaning is simply row, line, or verse. For example, the rows of stones in the breastplate of the high priest are by the LXX called *στίχοι*. Στίχος λίθων ἔσται· σάρδιον, τοπάζιον καὶ σμάραγδος ὁ στίχος ὁ εἰς (Ex. XXVIII 17), which the Vul-

gate renders by in primo *versu* erit lapis sardius, etc. In a military sense the *στίχος* is used of either a rank or file of soldiers, but more properly belongs to the latter. Thus we find in Montfaucon, Bibl. Coislin., cod. 347, some fragments of a little work De Tacticis, and here *στίχος καὶ δεκανία καὶ λόχος τὸ αὐτὸ ἐστίν· βάθος ἐστὶ φάλαγγος τὸ μὲν τὸ μέτωπον ἅπαν καὶ ὁ ἀπὸ λοχαγοῦ ἐπὶ οὐραγὸν στίχος καὶ βάθος λέγεται*, and the definition of *λόχος* contains the following interesting statement, showing that the fondness for particular numerical arrangements was gratified on every opportunity: *ἔνιοι μὲν τὸ σύστημα τὸ ἐξ ἀνδρῶν ὀκτὼ οἱ δὲ τὸ ἐξ ἀνδρῶν δώδεκα, οἱ δὲ τὸ ἐκ δεκαῆς ἀνδρῶν πλῆθος ὁ καὶ τέλειον φασι καὶ σύμμετρον*. We see that a preference is shown in arranging the men for the numbers 8, 10, 12, and 16.

Precisely similar statements are found in Ælian, Tactic. IV, from which we may take the following:

‘Ὁ δὲ λόχος ἐστὶν ἀριθμὸς ἀνδρῶν ἀπὸ τινος ἡγουμένου καὶ τῶν μετ’ αὐτὸν ὀπισθεν ἐπομένων μέχρι τοῦ τελευταίου· τὸν δὲ ἀριθμὸν τοῦ λόχου οἱ μὲν ὀκτὼ ἀνδρῶν ἐποίησαν, οἱ δὲ δώδεκα, οἱ δὲ δεκαῆς· ἔστω δὲ νῦν ἑκκαίδεκα ἀνδρῶν ὁ λόχος· συμμέτρως γὰρ ἔχει πρὸς τε τὸ μῆκος τῆς φάλαγγος· ὁ λόχος δὲ ὅλος καλεῖται στίχος, ὀνομάζεται δὲ καὶ δεκανία, ὑπο δὲ τινῶν ἐνωμοτία.

Στίχος a measure of syllables rather than words.

We shall then not be surprised if we find that the scribes, in arranging or in measuring their lines, show a preference for particular numbers; and any such plan of fixing the length of the line must evidently be by the enumeration, either of the letters, syllables, or words which the line contains. The last of these suppositions may be rejected almost at once; the continuous writing of early times pays little regard to words, which are broken up by the line-endings with the greatest freedom. On the other hand, the very greatest respect is paid to the division of syllables; it is true that this is somewhat obscured by the fact that the ancient division of syllables is different from the modern English method; but if we observe that the ancient syllable, in Greek manuscripts, ends with a vowel or weak letter, we can easily trace in most of the early MSS a complete system of syllable-section; and this respect paid to the syllable is a transcriptional phenomenon of great importance.¹

In fact, in many cases where we should speak of words, the

¹ Cf. Kühner, Grammar I 273, and Westcott and Hort, Introd. to N. T. 315.

ancient writer uses syllables; for instance, Galen¹ de placit. Hippocr. et Plat. VIII 1, ἐγὼ δείξω σοι δι' ὀλίγων συλλαβῶν, where we should say "I will show you in a few *words*." And Hermas Vis. II 1, μετε-γραψάμην πάντα πρὸς γράμμα· οὐχ ἡῤῥισκον γὰρ τὰς συλλαβάς, where again we should say "I copied the whole, letter for letter, for I could not separate the *words*."

The same preference for syllabic measurements may be seen in the following fragments of Longinus² on the nature of metre and verse: τοῦ δὲ περὶ μέτρων λόγου πολλοὶ πολλαχῶς ἤρξαντο· οἱ μὲν ἀπὸ στοιχείων, ὡς Φιλόξενος, οἱ δὲ ἀπὸ τοῦ μέτρων ὄρου, ὡς Ἡλιόδωρος, ἡμεῖς δὲ Ἑφαιστίωνι κατακολουθήσομεν, ἀπὸ συλλαβῆς ἀρξάμενοι. And again, χρόνος γὰρ συλλαβὴν ποιεῖ, συλλαβὴ δὲ πόδι, πούς δὲ συζυγίαν, συζυγία δὲ στίχον, στίχος δὲ ποίημα, so that the basis of Hephaestion's theory of verse, which Longinus approves, is the syllable. We shall not, therefore, be surprised to find the same prominence given to the syllable in prose measurements. When we refer to Hephaestion himself (περὶ ποιήματος ch. 1, p. 65, Westphal) we find that στίχος ἐστὶ ποσὸν μέγεθος μέτρου, ὅπερ οὔτε ἑλαττόν ἐστι τριῶν συζυγιῶν οὔτε μείζον τεσσάρων, or the στίχος is declared to lie between three and four συζυγίαι, which Longinus explains to be διποδίαι.

Thus the στίχος of Hephaestion ranges between 6 and 8 feet; and although his definitions refer to poetry, we shall probably be able to trace some similar manner of division for prose lines.

Actual case of numbered syllables.

In order to establish this point, we return to the passage of Galen previously alluded to, and transcribe it more at length: οὕτως γοῦν ὁ ἀληθὴς λόγος ἐστὶ βραχύς, ὡς ἐγὼ δείξω σοι δι' ὀλίγων συλλαβῶν περαινόμενον ὄντα τοιοῦτον. 'ἐνθα τῶν νεύρων ἡ ἀρχή, ἐνταῦθα τὸ ἡγεμονικόν. ἡ δ' ἀρχὴ τῶν νεύρων ἐν ἐγκεφάλῳ· ἐνταῦθα ἄρα τὸ ἡγεμονικόν' εἰς μὲν οὗτος ὁ λόγος ἐννέα καὶ τριάκοντα συλλαβῶν ὅπερ ἐστὶ δυοῖν καὶ ἡμισέως ἐπὶ ἑξαμέτρων. ἕτερος δ' ἐστὶ πέντε τῶν πάντων ἐπὶ. 'ἐνθα τὰ πάθη τῆς ψυχῆς ἐπιφανέστερα κινεῖ τὰ μέρη τοῦ σώματος, ἐνταῦθα τὸ παθητικὸν τῆς ψυχῆς ἐστίν· ἀλλὰ μὴν ἡ καρδία φαίνεται μεγάλην ἐξαλλαγήν ἔχουσα τῆς κινήσεως ἐν θυμοῖς καὶ φόβοις· ἐν ταύτῃ ἄρα τὸ παθητικὸν τῆς ψυχῆς ἐστίν.' εἰ δὲ συνθείης ὥδι τούτους τοὺς δύο λόγους οὐ πλείον τῶν ὀκτῶ ἑξαμέτρων τὸ συγκείμενον ἐξ αὐτῶν πλήθος ἔσται. τίνες οὖν αἴτιοι τοῦ πέντε βιβλίοις γραφῆναι περὶ τούτων ἂν διὰ ὀκτῶ στίχων ἡρωϊκῶν ἐπιστημονικὴν ἀπόδειξιν εἶχεν;

¹ Kühn, V 155.

² Longinus, ed. Egger, p. 69.

Στίχος identified with hexameter of 16 syllables.

According to Galen then, 39 syllables of prose writing are equivalent to $2\frac{1}{2}$ hexameters; 83 syllables represent 5 hexameters; the two quotations together, 122 syllables, do not amount to more than eight hexameters. From which it is obvious that the prose hexameter of Galen is 16 syllables; and we observe further that this line-unit is dignified with the alternative titles of *ἔπος ἐξάμετρον*, *ἔπος*, and *στίχος ἡρωϊκός*. The peculiarity in the use of these words seems to consist in the extension of the meaning of *ἔπος* which is implied in the use of an adjective, from its normal meaning of a heroic or hexameter line to the more general application which includes any written line whatever; while, on the other hand, the term *στίχος*, which normally represents any written line whatever, undergoes a contraction of meaning until we frequently find it used synonymously with hexameter, even to the exclusion of lines of other lengths. A curious instance of this may be seen in a tenth-century MS, written on Mount Athos, and described in Montfaucon, *Bibl. Coislin.*, p. 597. Here we find *στίχος* used of hexameter verses, in distinction from iambics.

περὶ ποιητῶν.

ὅσοι διὰ στίχων καὶ λάμβων ἔφρασαν

"Ὀμηρος στίχους, Ἀπολλώνιος στίχους, Θεόκριτος ὁμοίως,

"Ἀρατος ὁμοίως, Νικάνδρος ὁμοίως, Μένανδρος λάμβους κτέ.

So far, then, everything tends to the assumption that the *στίχος* is equivalent to the average hexameter, a conclusion which will be abundantly verified by an actual reference to texts and documents. It also seems that there is a preference shown for measuring the average hexameter by syllables, probably sixteen in number. The number of syllables in a hexameter is an instance of variation between fixed limits (cf. the definition quoted from Hephaestion); but the number sixteen invites especial attention, as being that suggested by the first line of Homer, and also on account of its symmetrical or square character, which, as we have already seen, gave it a preference in the determination of the conventional number of ranks in a phalanx of soldiers, and which was always an important feature in the eyes of those who saw special Pythagorean virtues in numbers.

Alternative of a letter-line.

On the other hand we must enquire whether there is any ground for asserting the existence of a letter-line in preference to a syllable-line; for it may be assumed, I think, with safety that the art of transcription undergoes a double development: first, it changes from letter-by-letter writing to a writing syllable-by-syllable, and from this, for greater ease in reading, to a transcription word-by-word; so that the lines for successive periods of time would end, in the first case with the geometrical limit of the line, in the second and third cases with the most convenient syllable or word. And this change is evidently in the direction from a very regular line, such as those found in many early inscriptions, to one not quite so regular, such as occurs in early vellum MSS, and so to the somewhat irregular later writing. We should expect then to find some traces of the measurement of the actual number of letters in a line. The following are the only instances with which I am acquainted.

On the back of an astronomical work of Eudoxus,¹ dating from the second century before Christ, are twelve verses forming the acrostic ΕΥΔΟΞΟΥ ΤΕΧΝΗ; these are arranged so that each of the letters is a day, each of the lines represents a month, and the whole poem a year of 365 days: according to the verse *ὁ μὲν στίχος μείς ἐστι, γράμμα δ' ἡμέρα.*² Another instance is given by Birt³ from Pappus Alexandrinus (II 17, 4; II 23) in which the verse:

Ἀρτέμιδος κλείτε κράτος ἔξοχον ἐννέα κοῦραι

is reckoned at 38 letters (*ἐπεὶ οὖν γράμματά ἐστιν λή τοῦ στίχου*).

Neither of these instances bears very exactly upon our enquiry; they show, however, traces of a method of measurement which must have been common in early times, when the letter, rather than the syllable, was the basis of metre and prose alike. It is almost a self-evident principle that a MS written on the basis of the letter will be reckoned by the number of its letters, and a MS written with reference to the syllable will be numbered by its syllables.

¹ Wattenbach, Gr. Palaeographie, p. 7.

² Birt, Buchwesen, p. 161.

³ Birt, p. 160.

Actual Calculation of the Length of Lines for Various Authors.

We shall now confirm these results by the examination of actual data supplied by MSS and authors, following closely the results of M. Graux, with such changes as may be necessary in the arrangement of the matter, and some additions and corrections. Where the results deduced for the value of the *στιχος* are given in letters, we have only to remember that the average hexameter, taken by M. Graux from 50 lines of the Iliad opened at random, is 37.7 letters; and where the result is given in syllables, the average is 15.6 syllables, as deduced by Diels¹ from the first fifty lines of the Iliad. In every case we must divide the estimated letters or syllables of a book by the number of traditional lines. We begin with Herodotus; stichometric notes are found in Laurentianus LXX 3, and Angelicanus C 1, 6, to books IV, V, VIII, IX.

M. Graux gives as follows:

		<i>Lines.</i>	<i>Letters to line.</i>
Book IV	XXXXHHΠIII	3253	37.6
V	XXHH	2200	37.5
VIII	XXHHHHΔΔII	2322	37.6
IX	XXHHHΠI	2206	37

Diels measures the syllables, giving:

	<i>Total lines.</i>	<i>Total syllables.</i>	<i>Syllables to line.</i>
Book IV	3253	48940	15.08
IX	2206	32640	14.8

For Thucydides we have the following from Dionysius of Halicarnassus (*Judic. de Thucyd. c. 10*):

Book I, c. 1-87	δισχίλιοι	2000	35
I, c. 1-23	πεντακόσιοι	500	35

Diels estimates the syllables for the second passage to be 7740 and deduces a normal line of 15.5 syllables. There are several other stichometric notes in Dionysius to other passages of Thucydides, for which M. Graux did not quote the results, because they seemed to diverge from the preceding. The difficulty in such cases is that the numbers are approximate and the passages not clearly defined. They will be found, according to Birt (p. 198), to give results agreeing closely with a line of 35 letters.

¹ Diels, *Hermes*, XVII Bd., 3 Heft.

In Isocrates we have a single subscription from Codex Urbinas, together with some other marks to be discussed later on. This gives us :

		<i>Lines.</i>	<i>Letter line.</i>
Busiris	HHH ^ρ ΔΔΔΔ	390	37.4

Diels gives 6070 syllables and deduces 15.5 syllables to the line, which is sufficiently near, though his estimate is in reality in excess by 30 syllables. Fuhr repeated M. Graux's calculation and made 37.66 letters to the *στίχος*.¹ With the same datum corrected to 395, as suggested by Fuhr, we have a line of 15.2 syllables.

For Demosthenes we have a valuable collection of data from Graux and W. Christ,² which may be exhibited in one table, with the corresponding MS authority and the deduced value of the *στίχος*. The notation of the MSS is based on that of Vömel, and no account is taken of documents inserted in the text. Obvious errors are corrected.

	<i>MSS.</i>	<i>Data.</i>	<i>Corrected lines.</i>	<i>Letter line.</i>
1 Olynth.	Σ BF.	HH ^ρ ΔΔΠ	265	34.8
2 Olynth.	Σ } BFA ₃	HH ^ρ ΔΔΔΔΠ } HHΔΔΔΔΠ }	295	35.3
3 Olynth.	Σ BF.	HHHΔΔΠ	325	36.6
1 Philipp.	Σ BF.	HHHH ^ρ Δ	455	36.4
Peace	Σ BF.	HHΠΙ	206	35.7
2 Philipp.	Σ BF.	HH ^ρ ΔΔΔΔ	290	35
Halonnesus	Σ BF.	HHHΔΔΔΔΠ	345	36.7
Chersonesus	Σ BFA ₃ .	Π ^ρ ΔΔΔΔΔ	590	37.3
3 Philipp.	Σ } A ₃ } BF.	Π ^ρ ΔΔΔΔΔ } Π ^ρ ΔΔΔΔΔ }	580	36.3
4 Philipp.	Σ } B. } A ₃ }	Π ^ρ HΔΔΔHH } Π ^ρ HΔΔΔH } Π ^ρ HΔΔΔIIII }	634	35.8
Letter of Philip	Σ BFA ₃ .	H ^ρ ΔΔΔΔΠΙ	196	35.1
Περὶ συντάξεως	Σ BF.	HHHΔΔΔ	330	35.8
Περὶ τῶν Συμμοριῶν	Σ BF.	HHH ^ρ ΔΔΔΔ	390	34
Liberty of Rhodians,	Σ BF. } Corr. }	HHHΔΔΔΔΠII } HHHΔΔΔΔIIII }	334	34.5
Megalopolitans	Σ BF. } Corr. }	HH ^ρ ΔΔΔΔIIIIH } HH ^ρ ΔΔΔΔΠII }	288	33.9
Treaty with Alexander, Vat.	Σ } Corr. }	HHHΔΔΔHII } HH ^ρ ΔΔΔΠII }	277	34.6

¹ Rhein. Mus. Bd. 37, Heft 3, p. 468. ² Die Atticusaussgabe des Demosthenes.

	<i>MSS.</i>	<i>Data.</i>	<i>Corrected lines.</i>	<i>Letter line.</i>
Crown	BF. } Σ }	XXϠHHϠΔHIII } XXϠHHϠΔΠIII }	2768	35.8
De fals. leg.	Σ BF.	XXXHHϠΔΔΔ	3280	35.9
Leptines	Σ BF.	XϠHΠIII	1608	35.6
Midias	Σ BF. } Corr. }	XXIII } XXHI }	2101	35.6
Androtion	Σ	ϠHHϠΔΔΔ	780	35.3
Aphobos I	Σ BF. } Corr. }	ϠHΠΔΔΔ } ϠHϠΔΔ }	670	35.1
Aphobos II	Σ	HHΔΔΔΔ	240	33.8
Adv. Onet.	Σ BF.	HΔΔΔΔ	140	33.9
Lacritos	Σ BF.	HHHHΔΔΔ	430	35.8
Nausimachos	Σ F.	HHϠΔΔ	270	34.4
Boeotos I	Σ	HHHϠΔΔΔ	380	35.1
Boeotos II	Σ	ϠϠΔΔ	570	34.8
Macartatos	Σ	ϠHϠΔΔ	670	35.2
Leochares	Σ	ϠHΔΔΔΔ	640	34.5
Stephanos I	Σ	ϠHHϠΔΔΔΔIII	793	34.6
Corona Trierarch	Σ } Corr. }	HHΠH } HHΠII }	252	34.4
Callippos	Σ	HHHΔΔIII	323	33.5
Nicostratos	Σ } Corr. }	HHΠI } HHHHΠI }	306	35.1
Conon	Σ	HHHHϠΔ	460	35.7
Eubulides	Σ } Corr. }	ϠϠΔΔΔΔ } ϠHϠΔΔΔΔ }	690	34.3
Neaera	Σ } Corr. }	XHHHHϠI } XHHHϠI }	1251	35.5
Epitaph.	Σ } Corr. }	HHHHHIII } HHHHϠΠII }	357	36.9
Eroticos	Σ } Corr. }	ϠϠΔΔ } ϠϠΔ }	560	34.4
Prooemia	Σ	XHHHHϠΔΔ	1370	35.6
Epistle I	Σ } Corr. }	NΔΔΔΠ } HΔΔΔΠ }	135	35.1
Epistle II	Σ	HHΔΠII	217	34.7
Epistle III	Σ } Corr. }	ϠHHHHϠΔΔ } HHHHϠΔΔ }	370	35
Epistle IV	Σ	HI	101	34.4
Epistle V	Σ	ΔΔΔΔ	40	36.5

The majority of the corrections in the previous table (due to Blass, Sauppe, and Graux) are sufficiently obvious. The results exhibit a remarkable constancy, though they are slightly in defect of the full average hexameter.

On the application of these data to the study of the genealogy of the MSS of Demosthenes, we must refer to W. Christ's valuable paper, previously alluded to.

Reserving the question of Biblical and Euthalian stichometry for later consideration, we have the following further references from M. Graux.

For Eusebius: *Praeparatio Evangelica*; from the MS Paris 451:

		<i>Lines.</i>	<i>Letter line.</i>
Lib. I	$\overline{A\Phi H\Gamma} = A\Phi N\Gamma$	= 1553	37.2
Lib. II.	$\overline{A\Upsilon\Pi\Gamma}$	= 1483	37.2
Lib. III.	$\overline{A\Omega N H}$	= 1858	36.1

For Gregory of Nazianzus; from the MS Laur. VII 8:

Homily I	$\overline{P H}$	36	Homily XXIII	$\overline{T M B}$	35.4
II	$\overline{A\Omega\varphi\tau}$	35.4	XXIV	$\overline{\Upsilon\varphi E}$	36.2
III	$\overline{P M B}$	37	XXV	$\overline{\Phi\Xi\Theta}$	36
IV	$\overline{B\Upsilon N H}$	36.6	XXVI	$\overline{\Phi K\Gamma}$	36.4
V	$\overline{A M B}$	36.7	XXVII	$\overline{C I = C O}$	36.7
VI	$\overline{X K E}$	36	XXVIII	$\overline{\Phi N\Theta} = \overline{\varnothing N\Theta}$	36
VII	$\overline{\Psi I H}$	35	XXIX	$\overline{\Phi\varphi}$	37
VIII	$\overline{\Phi\Xi\Theta}$	35.9	XXX	$\overline{\Phi = X}$	36.5
IX	$\overline{P M \Theta}$	37.4	XXXI	$\overline{\Psi O E}$	36.5
X	\overline{P}	35.9	XXXII	$\overline{\Omega I A}$	36.9
XI	$\overline{C \Theta}$	36	XXXIII	$\overline{\Upsilon M}$	36.6
XII	$\overline{P N}$	37.7	XXXIV	$\overline{\varphi\Theta} = \overline{c\varphi\Theta}$	36
XIV	$\overline{A I Z = A P Z}$	36.2	XXXVI	$\overline{T A \Gamma}$	35.5
XV	$\overline{\Upsilon A}$	36.8	XXXVIII	$\overline{\Upsilon N E}$	36.6
XVI	$\overline{X K \tau}$	35.3	XXXIX	$\overline{\Phi N = \Phi H}$	36.6
XVII	$\overline{T A E}$	36.8	XL	$\overline{A \Upsilon I \Theta}$	36
XVIII	$\overline{A C A H}$	35.8	XLI	$\overline{\Upsilon \Pi A}$	37.2
XIX	$\overline{\Upsilon I Z}$	36.5	XLII	$\overline{\Psi A B}$	36
XX	$\overline{T A}$	36.6	XLIII	$\overline{B \Upsilon}$	35
XXI	$\overline{A P \Xi A = \varnothing \Xi A}$	35.6	XLIV	$\overline{C \varphi E}$	35.6
XXII	$\overline{\Upsilon A H}$	36.8	XLV	$\overline{\Omega \Pi \Gamma}$	35.9

And for the letters of Gregory from the same source :

Ep. CI	TM	36
Ep. CII	P = PΞ	36.9

It must be sufficiently patent from the foregoing researches of M. Graux that every speculation as to the equality between the *στίχος* and the average hexameter is abundantly confirmed. The only thing that does not appear from the results is whether the lines are measured by their letters or their syllables ; but this has been already discussed, and we have arrived at a high probability in favor of syllabic measurements, at least in the case of later authors.

Alternative στίχος of twelve syllables.

The next question that arises is whether there are traces of any other normal lines ; and in the first place, are there any instances of lines measured by iambic trimeters, or lines whose normal extent is 12 syllables ? Now if we measure this line by letters, we at once find from 25 lines of the *Medea* of Euripides 29.96 letters ; and this number 29.96 is extremely suggestive when we examine the following passage from Josephus, at the close of the Jewish Antiquities : ἐπὶ τούτοις τε καταπαύσω τὴν ἀρχαιολογίαν, βίβλοις μὲν εἴκοσι περιελημμένην, ἕξ δὲ μυριάσι στίχων.

If we take the assertion of Josephus literally, remarks M. Graux, we should find for the value of the *στίχος* the inadmissible quantity 28 or 29 letters. The statement is then explained to be a rough expansion of the assertion that each of the 20 books of the Antiquities contained 2000 or 3000 *στίχοι*. And Birt (*Buchwesen*, p. 204) suggests the alternative reading εἰ for ἕξ by which the Josephus line will be 34.2 letters. Obviously the lines are really iambic lines : and this is confirmed in several ways by other considerations which I have adduced elsewhere.¹ It will also be more apparent as we proceed with our subject.

The importance of the result is mainly this, that it establishes the habit of writing iambic lines, at least so far as regards the first century and the locality of Syria, a conclusion which may affect our views as to the character of the originals of the New Testament.

¹Amer. Journ. Phil. 12, Suppl.

Alternative of a longer line.

Diels¹ believes that he has also found traces of a line even longer than the hexameter. He bases this belief on quotations which Galen makes from Hippocrates. From these we have:²

<i>Hippocrates (ed. Kühn).</i>	<i>Στίχοι.</i>	<i>Syllables.</i>	<i>Syllables to line.</i>	<i>Letters to line.</i>
I. 348—360, 18	240	4360	18	40.8
I. 348—371, + 616—625, 9	less than 600	11420	19	42.7
I. 624, 17—625, 9	about 10	212	21.2	49

Moreover, in another place, Galen (V 716, Kühn) reckons 86 syllables of Plato, Tim. p. 70 D, as 4 *στίχοι*.

The difficulty of admitting these results is considerable; for we have already shown that Galen employs a sixteen-syllabled line for measuring *στίχοι*, and it is difficult to see how he should have varied his standard for another so nearly coincident with it as 18 syllables would be. Moreover, Diels has shown, with high probability, by very appropriate quotations, that not only did Galen use a line of 16 syllables as his unit, but that the early copies of his works were written in an exemplar of that very length. This he establishes by the following quotations and measurements:

Oribasius III 662, 3 (ed. Daremberg et Bussemaker) *γίνεται δὲ ποτε κτέ.* From Galen, Meth. Med. XIV (X 1009, 4 sqq. Kühn), on which the Scholiast remarks (p. 689, 12) *ἀπὸ τοῦ ἰδ τῆς θεραπευτικῆς ὡς πρὸ στίχων* (1. *στίχων*) *τοῦ τέλους, κεφ. περὶ ἔρπητος.* Three similar quotations are given from the same source,³ and finally we have:

<i>Galen (ed. Kühn).</i>	<i>Στίχοι.</i>	<i>Normal Syllables.</i>	<i>Letters.</i>
X. 1007, 4—1021, 19	ca. 250	16.6	39.6
X. 445, 7—455, 12	ca. 200	15.9	41.2
X. 448, 4—455, 12	ca. 140	16.5	42.9
VII. 705, 1—717, 1	ca. 200	16	41

Galen, therefore, measures and perhaps even writes 16-syllabled lines; and the only conclusion we can come to is that his copy of Hippocrates must have been slightly in excess of the ordinary pattern, rather than that it was written on a new pattern.

¹ *Hermes*, Bd. XVII, Heft 3.

² Galen, ed. Kühn, XV 9, 10.

³ Oribasius, IV 179, 4; IV 181, 2; III 598, 11.

Subdivision of lines in MSS.

The existence of the normal hexameter and iambic lines is, however, so little obvious from surviving MSS themselves, that an objection arises against the previous investigations on the ground of want of actual paleographic evidence. Perhaps the deficiency on this point is due to two causes. First of all, the cataloguing of an exactly written library edition, such as would be found in the library at Alexandria, rendered the preservation of the stichometric form unnecessary and prepared the way for the breaking up of that form; and in the next place, the breadth of the columns of the papyrus-rolls did not generally admit that the lines should be written in full, and they were consequently subdivided into two, three, or more narrow lines. Conspicuous instances are furnished by the celebrated Vatican and Sinaitic codices of the Bible; of which the lines represent respectively a somewhat curtate half-hexameter and a similarly divided iambic trimeter. This I have shown to be the case in the two MSS in question by the actual examination of the text for the accidental hexameter in James I 17 and for a quoted iambic verse in 1 Cor. XV 34.¹ The supposition is confirmed by Baehrens,² in some good remarks on the Ancient Book-Form of Roman poets. And Baehrens points out that these subdivided lines may actually be seen in a papyrus roll represented on a Pompeian painting, where four lines are found divided into sixteen. This, however, may be nothing more than artistic license. In Montfaucon, *Bibl. Coislin.*, for example, the Gospel of John is pictorially represented as being written by its author in lines of about a syllable each. The most likely place to find these subdivided lines is in epistles, which seem to have been written on shorter models.

Partial Stichometry.

A further development of the simple stichometric subscription is found in those MSS which inform us, by means of marginal notes from point to point, as to the number of *στίχοι* contained in

¹ American Journal of Philology, 12, Suppl. p. 18.

² Neue Jahrbücher für Philologie, Elftes Heft, 1882, p. 785: "aber dafür gab es nur eine möglichkeit, nemlich indem man die seiten schmaler machte; und dies führte wiederum notwendig dazu dass man grössere verse (hexameter u.s.w.) auf zwei oder mehr zeilen vertheilte."

the preceding portion of the book. And exactly similar statements are found in many early writers, who cite books by the number of *στίχοι* precisely as we quote page and line. To these annotations Schanz has given the name of Partial Stichometry.

Precisely as in the case of total stichometry, we find that these MS notes have no special connexion with the lines or verses of the documents in which they occur; they refer either to older copies, or to fixed and uniform measurements, perhaps to both.

For Isocrates.

For example, we have already discussed the total stichometry of Isocrates, Busiris, in Codex Urbinas. The MS also contains marginal references, which have been studied by Fuhr.¹ Thus we find fol. 22, 10 (§25), before *τούτων αἴτιοι* the letter B; and before *γεγονότας ἡ τοὺς* the letter Γ; between these two Fuhr counts 3763 letters, which evidently represent 100 *στίχοι*. If this estimate be correct, we ought also to find that the part of the book before B represents 200 verses, the letters on the margin being the conclusions of the several hundreds of hexameters. When the book is measured in sixteen-syllabled *στίχοι*, we have the mark B at the 190th line and Γ at the 287th line; if, however, the lines are a little short so as to average 15.2 syllables, we have B at the 200th line and Γ at the 301st line, which is very exact; and the total book is now 395 verses, which supports Fuhr's emendation. These marks are therefore relics of a stichometry suitable for quotation; as they are not in the archaic numeration which is found at the close, but in the ordinary Greek character, it is right to assume that they are later in date. And we shall probably see reason to conclude that partial stichometry is, in its historical development, always later than total stichometry. In many cases the notation is a transitional one, employing the letters of the alphabet for the successive numbers, but not grounded upon the decimal system as in the later numeration.

There are several other marks on the margin of this MS which have never been explained. At Busiris 10 stands the figure ς against the words *ἀπολογία ποιήσασθαι*. This represents the 82d line (of the same length as the measured verse), and if we allow a little blank space at the beginning of the document for its title, it

¹ Rhein. Mus. 37 Bd. 3 Heft, 1882, p. 468.

may very well be the close of the sixth page of the exemplar copied, each page being 14 hexameters.

The mark ✕ also occurs, three times, once with the previous mark, once at the 345th *στίχος*, and once at the 368th. These are probably the marks of the *διορθωτής* or MS corrector, and may refer to simple pauses in the work of revision, or perhaps to pages either of the MS copied or of that used in the process of revision. In the actual case in question, the first pause was at the sixth page of the MS copied; while the proportion of the numbers 345 and 368, which are 15×23 and 16×23 , shows that the other two marks may be the conclusions of the 15th and 16th pages respectively of the *revising* MS.

The Urbinas MS has also other annotations of various kinds, the most prominent being the paragraph mark, a horizontal stroke against the beginning of the line where the pause is to be made. All these marks may be found quoted in Fuhr's article already referred to.

For Plato.

Schanz¹ has discussed a precisely similar question for the Plato manuscripts. He remarks that the Bodleian Plato (Clarkianus) has partial stichometry in the Cratylus and Symposium, the letters running continuously to ψ . Counting the lines of Clarkianus between the successive marks, we have 68, 69, 70, 71, 72, 73, 74, 75; 71 being the most frequent interval. Now this gives us a *στίχος* of 35.56 letters for the Cratylus, and 34.32 for the Symposium, which are sufficiently in accord with M. Graux's results. Similar stichometric marks are found in another MS of Plato, Venetus 185 (II of Bekker, D of Schanz.) Here again they are confined to Cratylus and Symposium. Between two following letters lie on the average 68 lines; and the same sections are marked off by the letters as in Clarkianus. An interesting application is made by Schanz to determine the authenticity of a passage in Cratylus 437d, where certain words are wanting in MSS B and T. We can at once verify that these words were wanting in the exemplar that supplied the stichometry.

W. Christ has studied in a similar manner the partial stichometry of Demosthenes² (Codex Bavaricus), and applied the results to

¹ Hermes, XVI 309, 1881.

² Die Atticusaussage des Demosthenes. München, 1882.

the discussion of the integrity of various works of Demosthenes. The data for this investigation will also be found in the preface to Reiske's edition; though Reiske himself seems to have been ignorant of the meaning of the letters for which he gave the references. It will be sufficiently evident from this brief statement that the partial stichometric notes are even more important than the concluding numerical results for the purpose of the determination of the text as it stood in the early exemplars from which the numbers must have been derived.

Further instances.

The Papyrus Bankesianus has the verses marked by hundred on the margin. So, apparently, the Ambrosian Pentateuch;¹ and many intermediate data for the measurement of the Acts and Epistles will be found in Zacagni's edition of Euthalius. Some instances of quotation by the number of *στίχοι* are found in Diogenes Laert. VII 33, 187, 188, but they are mostly in round numbers (*κατὰ τοὺς διακοσίους στίχους, κατὰ τοὺς ἑξακοσίους, κατὰ τοὺς χιλίους στίχους*), and we cannot therefore affirm that in these cases the exemplars employed by Diogenes were provided with intermediate measurements. Wachsmuth² has discussed these references more at length with the object of showing the precise nature of the quotations made by Diogenes. He also points out that in the similar quotations which Asconius makes from Cicero, there is no reason to suppose the use of a measured exemplar, the citations made being frequently very loose, such as *circa medium, circa tertium*, and the verses being sometimes measured from the end instead of the beginning of the cited work. We have, however, sufficient actual MS evidence to make us certain that the method of citation by *στίχοι* must have been a common one; indeed, it was the only method available with any approach to accurate quotation.

Sense-lines.

As we have already suggested that the development of the art of transcription proceeds from a foundation of letters to one of syllables, and finally from syllables to words and sentences, it becomes interesting to inquire whether there are instances of word-

¹ Ceriani. Mon. sacra et prof., III, p. xii. ² Rhein. Mus. 34 N. F. p. 38, 1879.

lines or sentence-lines corresponding to the well-established syllabic line.

If such exist, they will have made their appearance first in those parts of literature where the distinct enunciation of a sentence is most important, with the object of removing the causes which hinder rhythm and vocal effect. That is, it is evident that in works which are publicly recited, an effort will be made to render more easy the task of reading orally a continuous text. This is the case with the works of the great orators, as well as with the church lessons; and we may expect to find in such works a tendency in the direction of sense-lines rather than space-lines. In the first instance this tendency will only be manifested by the introduction of the paragraph mark, as it is found in the Hyperides papyri, the MS of Isocrates, and the early Bible texts. But this paragraph mark, perhaps accompanied by a rude interpunction, is not found by the rhetoricians to be a sufficiently obvious and emphatic division of the text. Sense-lines are therefore introduced. The change seems to be made in the first case with a reservation that the text when broken up shall still represent the same number of lines, or sensibly as many, as the archaic copies. And the natural effect of such a change is that the *στίχος* undergoes a new deflection in the direction of *sentence*, the sentence being not very different from a hexameter.

The evidence for these statements may be arranged as follows: St. Jerome, at the commencement of his preface to Isaiah, informs his readers as to the nature of the book that he is translating.

"Nemo cum Prophetas versibus viderit esse descriptos metro eos aestimet apud Hebraeos ligari, et aliquid simile habere de Psalmis vel operibus Salomonis: sed *quod in Demosthene et Tullio solet fieri, ut per cola scribantur et commata*, qui utique prosa et non versibus conscripserunt, nos quoque *utilitati legentium* providentes, interpretationem novam *novo scribendi genere* distinximus."¹

St. Jerome introduces for the convenience of readers a new kind of transcription similar to that which was in vogue for Cicero and Demosthenes; this division of the text is by *cola* and *commata*. From Suidas² we find that when the *στίχος* forms a complete clause it is known as a colon: *κῶλον οὖν ὁ ἀπηρτισμένην ἔννοιαν ἔχων στίχος*.

From Joann. Sicul. in Hermog. I, 63 (Vol. VI, p. 127, Walz), we find that writing by *cola* and *commata* is the invention of rheto-

¹ Migne, Patrol. Lat. XXVIII, col. 771.

² s. v. κῶλον.

ricians in imitation of poetry: ὥστε ἐπειδὴ ποιητὰς οἱ ῥήτορες μιμοῦνται κῶλον λέγουσι τὸ ἀπὸ ἐννέα συλλαβῶν ὅν μέχρι τῶν ἑπτακαίδεκα· τὸ δὲ πλεον σχοινοτενές ὠνόμασται, κόμμα δὲ ἀπὸ μιᾶς μέχρι τῶν ὀκτώ. στίχους δὲ κοινῶς οὗτοι καλοῦσιν ἅπαντες εἰ μόνον ἀπαρτίζοιεν ἔννοιαν. In this passage it is interesting to observe that the standard of measurement is still the syllable, but, as we should expect, there is no longer a fixed number of syllables to a line, but we have three rough divisions; viz. if the clause be less than eight syllables it is called κόμμα, if between eight and seventeen it is called κῶλον, and if greater than this, σχοινοτενές or a long-drawn-out sentence. Such a long line is actually termed a verse in a quotation given by Vömel¹ from Aquila Romanus de Figuris c. 40: "Ponam . . . Demosthenicum versum; Et non dixi quidem haec . . . persuasi quidem." The passage (De Corona, §179) contains 20 words. We may actually see in operation the process of dividing the text of Demosthenes into κῶλα.

In a passage of the rhetorician Castor,² of the fifth century, we find the following:

Θήσομαι τὸν ὅλον Δημοσθενικὸν λόγον τὸν ἐπιγραφέντα Πρὸς τὴν ἐπιστολὴν Φιλίππου· τοῦτον γὰρ στίξομεν, σὺν θεῷ φάναι, κατὰ κῶλον καταντήσαντες εἰς τὴν ποσότητα τῶν κῶλων κατὰ τὸν ἀριθμὸν τὸν ἐγκείμενον ἐν τοῖς ἀρχαίοις βιβλίοις, ὡς ἐμέτρησεν αὐτὸς ὁ Δημοσθενὴς τὸν ἴδιον λόγον.

Castor proposes, that is, to punctuate a passage of Demosthenes so that the numeration of the broken-up text may agree with the number of verses found in the old copies. Whether he supposes Demosthenes himself to have divided the text in this way, or whether he implies by the word ἐμέτρησεν a regular and uniform measure, is not very apparent at first sight; but a little consideration will show that it is not important to decide such a point, for it is sufficiently demonstrated that the stichometry of the MSS of Demosthenes is hexameter stichometry; and it must be the number of such verses that Castor wishes to preserve. Dionysius Halic. De Comp. Verb. XVIII gives explanations of the methods employed in breaking up the text of Demosthenes into cola and periods. For instance, in De Corona the first period is to consist of three cola, as follows:

Ἐν δὲ τῇ περὶ τοῦ στεφάνου λόγῳ, τρία μὲν ἐστὶν ἡ τὴν πρώτην περίοδον συμπληροῖ κῶλα· οἱ δὲ καὶ ταῦτα καταμετροῦντες οἷδε εἰσὶν οἱ ῥυθμοί.

Πρῶτον μὲν, ὃ ἄνδρες Ἀθηναῖοι, τοῖς θεοῖς εὐχόμεαι πάνσι καὶ πάσαις . . .

¹ Rhein. Mus. N. F. II 452.

² Walz. Rh. Gr. III 721.

Τοῦ δὲ δευτέρου κώλου τοῦδε.

Ὅσῃν εὐνοίαν ἔχων ἐγὼ διατελῶ τῇ τε πόλει καὶ πᾶσιν ὑμῖν . . .

Τοῦ δὲ τρίτου κώλου,

Τοῦ τοσαύτην ὑπάρξαι μοι παρ' ὑμῶν εἰς τουτονὶ τὸν ἀγῶνα.

It is evident that this custom of colon-writing introduces a measure of confusion into the subject ; the more so because colon-writing is sometimes accompanied by colometry, of which occasional traces may be found, as in Dionysius Hal.¹ who makes the proem to Thucydides up to οὐ χαλεπῶς ἀπανίσταντο to be 30 cola, and the beginning of the Aristocratea to be 9 cola. Misled by this peculiar dissection of the text at the hands of the rhetoricians, F. Blass² maintained strongly that the ancient στίχος was not a space-line but a sense-line. And with remarkable skill, which M. Graux honored with the term *habileté de main*, he proceeded to divide various passages, principally in Demosthenes, into a number of cola, sufficiently nearly in accord with the traditional number of verses.

Besides this, he reasoned that if the στίχος were a fixed quantity there ought to be a sensibly uniform ratio between the number of verses and the number of lines occupied in the printed text. This he maintained not to be the case.

In this, however, he seems to have failed almost completely, if we allow for the small margin of variation necessary in the measurement of the lines, and the small variations in the sizes of the Teubner pages to which he referred. A single instance will suffice. Taking the data for Herodotus, Blass gives :

	Στίχοι.	Teubner Lines.	Ratio.
Lib. IV	3253	2764	.849
Lib. V	2200	1866	.845
Lib. VIII	2322	1952	.840
Lib. IX	2206	1849	.842

If this does not demonstrate the use of a uniform verse-measure for Herodotus, it would be difficult to prove anything.

The merit of Blass' work consists, however, in the light it throws on the early rhetorical studies, and not at all in its bearing on stichometry. Blass himself, after making his colon division, came to the conclusion that the colon could not be very different from

¹ Dion. Hal. de Comp. pp. 169, 199.

² Zur Frage über die Stichometrie. Rhein. Mus. N. F. XXIV, 1869, p. 524.

the hexameter. "Die Zeilen sind mitunter lang, *aber selten länger als ein Hexameter.*"¹ "*Das rhetorische Colon entspricht dem poetischen Vers.*"² This is precisely what we should expect to find, for we have indicated that the colon was introduced as an alternative for the hexameter, and was made as far as possible equivalent to it. Another instance of this tendency, besides those which have been already quoted, is found in Cicero, Orat. 222: "E quattuor igitur (sc. membris) quasi hexametrorum instar versuum quod sit, constat fere plena comprehensio. His igitur singulis versibus quasi nodi apparent continuationis, quos in ambitu coniungimus."

Herodes Atticus³ is said to have had a clepsydra made which was the time-equivalent of 100 hexameters, *συμμετρημένην ἐς ἑκατὸν ἔπη*, by means of which his enunciation was regulated.

Scrivener's pay and price of books.

We now turn to the question of the employment of stichometric measurements in determining the pay of scribes and regulating the price of books. For investigations on this point the best researches are those of Graux and Birt.

It is established by means of the celebrated edict of Diocletian (A. D. 301), which was a tariff of maximum prices for the Roman empire, that the pay of scribes was by the hundred lines; and M. Graux very justly remarked that this assumed the fixity of the line, and would be altogether illusory upon any other hypothesis. I have discussed elsewhere the statements of this edict and their stichometric value.⁴ It is only necessary, therefore, to give a brief recapitulation of the points thereby established. The edict from which the data are supplied is found in greater or less completeness in many localities, but the most important form is presented in an inscription from Stratonice; the figures being edited in the Corpus Inscriptionum from another inscription found in Phrygia. We have then:

Membranario in [qua]t[r]endone pedali pergamena.	[XL denarii]
Scriptori in scriptura optima versus No. centum.	[XXV]
Se[quentis] scripturae versuum No. centum.	[XX]
Tabellanioni in scriptura libelli vel tabular[um] in versibus No. centum.	[X]

¹ P. 529.

² P. 530.

³ Philostratus Sophist. II 10, p. 185, quoted by Wachsmuth, Rhein. Mus. 34, 1879, p. 481.

⁴ American Journal of Philology, 12, Suppl. p. 22 sqq.

It is clear from the inscription that there are at least two principal types of writing, if not a third; and in every case the measurement is by verses, no distinction being made or imagined between prose and poetry.

It is inconceivable that the difference in price should be due to a difference in the quality of the writing (as Birt suggests), for it would be somewhat difficult to graduate such uncertain things as the hands of scribes, to say nothing of dividing them exactly into good and bad; it must, therefore, be of different lengths of line that the edict speaks, *optimus* and *sequens* being the common terms all through the edict for first size and second size.

If the prices are correctly edited in the Corpus, the ratio 5 : 4 ($\equiv 35 : 28$) is very nearly that of the normal hexameter to the normal iambic line, 36 : 28, which confirms our previous speculations as to the existence of the iambic lines. The difficulty in all such cases is to reduce the brass denarius of Diocletian's time into an equivalent of modern money. If we may take the values given by Birt¹ from Hultsch,² the payment is sufficiently small; 100 denarii being worth no more than 2.4 marks. The denarius is then .6 cent; the scribe's pay being 15 cents for a hundred hexameters and 12 cents for a hundred iambics. On this basis I have calculated the cost of production of the complete volume of which the Codex Sinaiticus forms a part; the result being approximately 180 dollars, the cost of the vellum being included.

It is not uncommon to find in early codices notes of the prices for which they were sold; Montfaucon (Bibl. Coislin. p. 57) observes that the price on the first leaf of a Psalter is γρόσα δ' = grosa sive drachmae quatuor; and at p. 83 he notes that codex 29 was bought for 24 *aspra*, the book itself being a commentary by Chrysostom on S. Paul's epistles.

A cursive MS of the Gospels (No. 444) sold in A. D. 1537 for 500 *aspra*; upon which Scrivener³ notes that "the asper or asprum was a mediaeval Greek silver coin (derived from ἄσπρος = albus); we may infer its value from a passage cited by Ducange from Vincentius Bellovacus, XXX 75, 'quindecim drachmae seu asperos.'" Since the 4 Gospels are not more than twice as long again as the Psalms, it is difficult to see why the Psalter should

¹ Birt, p. 209. ² Hultsch. Neue Jahrbücher für Philologie, 1880, Heft 1.

³ Scrivener, Introduction to N. T., p. 208.

sell for 4 drachmae and the Gospels for 500. And it is possible that Montfaucon's price is incorrect.

M. Graux¹ gives us the further important information with regard to the pay of scribes, that the custom of regulating, if not the tariff, at least the measure of lines written, continued right into the middle ages, especially at Bologna and other university towns in Italy. He quotes Savigny,² *Geschichte des Römischen Rechts im Mittelalter*, to establish this point.

The unit of measure is the *pecia*, which consists of 16 columns, each containing 62 lines, and the number of letters in each line being 32. "*Secundum taxationem studii bononiensis firmamus quod petia constituetur ex sedecim columnis quarum quaelibet contineat sexaginta duas lineas et quaelibet linea litteras XXXII.*" The numbers here are peculiar, and it is extremely difficult to believe that as many as 62 lines were normally written on the page. It is interesting, however, to observe the survival of ancient custom in the columnar writing, and the measurement of lines by letters. The statute is, therefore, in all probability the relic and modification of previous laws.

Whether the line of 32 letters has any reference to the Italian poetry, as Birt suggests, is extremely doubtful. It is more likely to have been suggested as a multiple of the favorite number 16. We have no reason to suppose that such a statute as that mentioned required that MSS should actually be copied in columns or lines of the pattern indicated; all that was necessary was the adoption of this unit as the standard, and the record by the scribe of the number of *peciae*. M. Graux remarks that these notes of the scribe as to the progress of his work, "*finis pecie I,*" are sometimes found in the body of the pages or the text.

Upon the whole, I am inclined to believe that the text of the statute is incorrect in reading sixty-two lines, a most improbable number. If we read 72 for 62, the *pecia* is almost exactly 1000 hexameters of 36 letters each; strictly speaking it is 1024. And this is an extremely likely unit of work to have been handed down by tradition from the early scribes.

An interesting survival of this early manner of determining the pay of a scribe is found in the modern custom among Indian copyists. Here the basis is the *çloka*, an iambic metre of 32 syl-

¹ *Revue de Philologie*, p. 139.

² T. III, c. xxv, §579.

lables, which is applied as a unit of measurement to writings of all kinds.¹

We shall now turn our attention to the bearing which these results have upon the restoration of the early book-form, and in particular upon the texts of the New Testament. Thus far we have avoided almost entirely any reference to the stichometric data supplied by Biblical MSS, because they constitute so important a factor in textual criticism that they deserve a separate discussion, and one more complete than has hitherto been accorded them. For the same reason we have reserved any allusions to Euthalius and his edition of the New Testament.

J. RENDEL HARRIS.

¹ Note by Dr. Bloomfield in Amer. Journ. Phil. 12, Suppl. p. 22, and remark by Gardthausen from Nöldeke, in Griech. Palaeogr. p. 132.

(To be continued.)

II.—STUDIES IN PINDARIC SYNTAX.

III.—AORIST AND IMPERFECT.

In older grammatical study there was much teleology. I do not mean merely teleological expression, for language was made by teleologists, who could not have understood any result without conscious agency somewhere. The final is always earlier than the consecutive; and even when the consecutive comes in, the final element may reappear at any moment. So the evolutionists are not to be assailed because they use the only vocabulary that the dynamic thinkers of the earliest days have left them; and the grammarians of the future will use to some extent the consecrated expressions of the past. But the attitude is changed, and though our grammars speak of certain forms, of certain phrases, as if the *demiurgos* of language had gone to work deliberately and framed forms and phrases to a clear end, we no longer wonder at the marvellous mechanism of speech. The most varied, most pliable, most subtle language on earth is only a congeries of survivals. The harmonies of speech are the result of the indolence of the human organs of utterance. The close texture of composition and inflexion is due to slurring impatience. At first, it is true, the scientific study of language heightened the admiration with which the faculty of speech was once regarded. The human mind, unscientific as well as scientific, delights in the variations produced by the combination of a few elements. Given a short list of radicals, a handful of terminations, and the language with all its arborescent growths is there. So the identification of the personal endings of the verb with the pronominal stems for *I, thou, that* seemed to our fathers a revelation. This revelation we look upon coldly now. We go a little way in Greek, for instance, and the scheme seems plausible. A little further, and we are perplexed beyond measure. The terminations seem to have wandered off from the bodies to which they originally belonged and to have grafted themselves on alien trunks. Primary endings attach themselves to stems which ought to have secondary endings—as $-\mu$ of the optative—and secondary endings are equally capricious, as is shown by the second

person singular of the present indicative active. And so after many disillusionments we come down to the sober view that language serves its purpose only after a rude fashion. Physiologists have declared the eye as an optical instrument to be a wretched failure, and our students of linguistics smile at the enthusiasm which once clothed the subject of language with the purple light of rhetoric.

This changed attitude of the grammatical mind toward language may be illustrated by the treatment of function. In old times the grammarian cudgelled his brain to find the meaning common to all the functions of the ablative case. The principle that each form must have its function was a logical necessity. That any language which had once developed a form should lose it, should carelessly merge three or four forms into one, or use a dominant form for different functions, seemed impossible proceedings on the part of the personification called 'language.' Modern research has no scruples on that score, and goes so far, in fact, as to ignore utterly what remains of consciousness are preserved, not by the personification called language, but by the actual users of language. On the other hand, many distinctions which seemed to be rooted in the nature of things prove on examination to be mere afterthoughts. The early speakers put forth a variety of forms with no sharp distinction, and those that came after made a regular differentiation, sometimes on symbolic principles, sometimes on no discernible principle.

So while we have not a weltering chaos, we have no beautiful *κόσμος*. What we have may be something practically better than the fancied *κόσμος*, as it certainly is practically better than any *κόσμος* that human wit could devise. A compromise is often better than a thorough measure, and while our study has not the charm of logical symmetry, which the average individual of our race prefers, it has the charm of conscientiousness.

The distinction between imperfect and aorist is one of the old landmarks that have suffered from the closer study of language, and in exploring the borderland in which grammar and literary art meet, I have examined recently whether the Pindaric use of aorist and imperfect gives any reason to suspect any indifference on that score. Of course, in the ordinary school-grammars there is hardly a whisper of doubt as to the universality of the difference, and this may doubtless be considered sound practice. But if the student is to grapple with Homer—and he is generally introduced to Homer as soon as he can make out Xenophon's *Anabasis* without

frightful exertion—he will be met by the remarkable statement of commentary and text-book that it often does not matter which is used. So La Roche on B 43 copies from Krüger Di. §53, 2, 1, a long list of indifferences. Krüger says that the choice is often arbitrary, often dictated by metrical considerations. So we find without ‘any considerable difference’ βαῖνον and βῆ, A 437 and 439; βάλλετο and βάλετο, B 43 and 45; θῆκεν and ἐτίθει, Ψ 653 and 656, ε 265. 267; δῶκε and δίδου, H 303 and 305; λίπε and λείπε, B 106 and 107; still more striking is μίστυλλον side by side with ὤπτησαν περιφραδέως, A 465. All these are given in the same order by Professor Goodwin in his Moods and Tenses; only Krüger’s ‘erheblicher Unterschied’ becomes ‘perceptible difference,’ and the indifference is referred to the meaning of the verb, an explanation which lacks clearness. It is a little remarkable that Delbrück, in his Grundlagen der griechischen Syntax, takes βαίνειν and βῆναι and βάλλειν and βαλεῖν as striking examples of the Homeric differentiation of durative and aoristic tenses; δίδοναι and δοῦναι are sharply distinguished elsewhere.

In prose the MSS are sometimes to blame for the confusion of ἔλειπον and ἔλιπον, but there is a translatable difference everywhere, and it is hard to admit, without better evidence, that Homer, so exact in the use of the tenses, should have admitted the imperfect *metri causa*, though *metri causa* is coming to honor again. At the same time it must be acknowledged that the attempts to constitute a difference of conception are often lamentable in the extreme, and it would be better simply to note the difficulty as a problem than to hazard such breakneck mental positions as commentators sometimes indulge in. After all the preaching that has been done on the subject of the tenses, grammarians, the sermon over, are apt straightway to forget that the imperfect has nothing to do with the absolute length of the action, it has only to do with the vision of the narrator. So Nägelsbach’s notion that the imperfect might refer to the abiding character of the result, though almost demonstrably false, has been echoed by so good a scholar as Classen. So rooted is the tendency in beginners to consider imperfect ‘prolonged’ and aorist ‘momentary’ that a course of εὐθύς with the imperfect and of high numbers with the aorist is necessary to get them into right habits of thought; but certainly veteran scholars ought not to be tangled with such formulae.

What I wish to bring out in these remarks is the substantial justification of the difference between imperfect and aorist, from an

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aesthetic point of view. Let it be conceded that the imperfect is nothing more than an aorist which has a present indicative, whereas the second aorist has no such present indicative. The present indicative is associated in the mind of the Greek with the idea of duration. He has no aoristic present, as a matter of fact, in the crystallized language. If he wishes to express the notion, he must use the aorist indicative as an approximation. Otherwise he must let the aoristic idea come out as best it may from the environment. It is useless to inquire into an earlier type. Contrasted groups such as *φεύγω* and *ἔφυγον*, *λείπω* and *ἔλιπον* preserved clear samples of durative and complexive, and that is enough from the point of view of the users of language. *ἔτρεφε* was as durative as *ἔφευγε*. First aorist and second aorist, though formed on different principles, unite in the complexive notion—the first aorist keeping for itself the special notion of ingress. First aorist and second aorist, then, we may regard as one, so far as the contrast to the imperfect is concerned, and they are so regarded in the statistics I am about to submit—statistics which seem to show how intimate is the association of aesthetics and grammar.

Of course, in separating aorist from imperfect, difficulties and doubts arise. Some of the old preterites, ordinarily classed among the imperfects, may fairly be claimed as aorists or indifferents. So *ἦν* may be considered indifferent, and *ἔφην* is decidedly aoristic. Then there are variations in reading, coincidences of form, *ἄμυνεν* and *ᾤτρυνεν*, and the balance produced by durative and complexive forms of the verb, outside of the indicative, has also to be considered, so that the investigation is laborious—laborious out of all proportion to the possible result. Still, having begun with a few characteristic odes, I was encouraged to continue; and now that the work is done,

¹ *φάς* is aoristic. Clearly so Il. 9, 35; 14, 126; not so clearly Il. 3, 44. In Attic all ambiguity is removed by the bifurcation into *φάσκω* and *φήσας*. *φάμενος* has no offsetting middle of *φάσκω*, and, while *ἔφατο* is clearly aoristic, *φάμενος* may be durative (cf. Hdt. 1, 176; 2, 22. 28. 148. 174; 3, 31. 68. 69. 74. 75 *bis*, etc.). In Pindar *φάμενῳ* (I 5, 47) is complexive, while *παρφαμένα* (N 5, 31) would naturally be considered durative: *πολλὰ γάρ νιν παντὶ θυμῷ παρφαμένα λιτάνειεν* (Schol. *ἐλιτάνειε καὶ παραπείθειν ἐπεχείρει συνελθεῖν αὐτή*). The whole subject of these early verbs is full of difficulties. So a long chapter might be written on *ἦα* and its forms. In Homer the group is aoristic. In Attic the absence of an imperfect to *ἐρχομαι*, as well as the presence of *εἰμι*, forced on the group an imperfect sense which commentators (e. g. Classen on Thuk. 1, 2, 4; 3, 22, 2) have not failed to develop.

it may be worth while to register the facts, without putting sledge-hammer emphasis on the conclusions.

The logaoedic and the dactylo-epitrite odes of Pindar differ from each other in many points, one might say in every point in which the law of the epinikion and the individuality of the poet are not involved. It is not necessary to expand on this familiar theme. The organic difference which expresses itself in the rhythm, expresses itself in the build of the poem, the development of the story, the order of the words. Why not in the use of the tenses? The quicker measures of the logaoedics would seem to call for more short forms and consequently for more second aorists. Pindar himself, when he is professedly quickening his pace in the narrative, multiplies aorists,¹ and almost tells us that he considers the aorist complexive. Should we not expect, then, to find in the myths of the dactylo-epitrites a larger proportion of imperfects, in the logaoedics a larger proportion of aorists? Of course the aorist will preponderate in both classes. That is the rule of the language. And regard must be had also to special emergencies. The law of the rhythm is crossed by the necessities of the story. There may be dactylo-epitrite stories that demand sharp, rapid handling. The poet may pause for leisurely contemplation in the logaoedic. But taking a sufficient basis for induction, we find that on the whole the proportion of imperfects to aorists in the dactylo-epitrites rises in a marked degree—a proportion that can not be seriously affected by recount, by elimination of errors.

I cannot pause to justify the selection I have made out of the forty-odd Pindaric odes. Pindaric scholars will understand most of the omissions. I have limited myself to the narratives, and have counted in them, not only imperfects and aorists, but also duratives and complexives outside of the indicative. After a rough preliminary count, which led me to think that a more exact examination would be remunerative, I requested Mr. C. W. E. Miller, Scholar of the Johns Hopkins University, to go over the ground carefully, and compare his lists with the result of my second examination. In this way, it is hoped, most of the errors have been eliminated. The result is the following table—worked out by Mr. Miller. The references are to Christ's edition (Teubner).

¹ See P 4, 247: *μακρά μοι νείσθαι κατ' ἀμαξιτόν· ὦρα γὰρ συνάπτει καὶ τινα | οἶμον ἴσαμι βραχύν.* From this point to the end of the story, P. has eight aorists and but a single imperfect. Contrast the statistics of P 4 given below.

		INDICATIVE.			MODAL.		
		Imp.	Aor.	Ratio.	Dura.	Compl.	Ratio.
LOGAOEDIC.							
O 1	25-92	6	23	1 : 3.833	11	16	1 : 1.454
O 9	42-79	3	12	1 : 4	5	11	1 : 2.2
O 10 (11)	24-77	6	18	1 : 3	9	10	1 : 1.111
O 13	63-92	2	12	1 : 6	11	8	1 : .727
P 2	21-48	3	15	1 : 5	9	3	1 : .333
P 5	55-95	2	11	1 : 5.5	6	5	1 : .833
P 6	28-42	2	6	1 : 3	3	4	1 : 1.333
P 8	39-56		4	0 : 4	3	4	1 : 1.333
P 10	31-48	1	4	1 : 4	4	4	1 : 1
P 11	17-37	1	9	1 : 9	4	4	1 : 1
N 3	33-64	9	7	1 : .777	10	5	1 : .5
N 4	54-68	2	5	1 : 2.5	1	3	1 : 3
N 6	53-61		4	0 : 4	1	2	1 : 2
N 7	27-48	3	10	1 : 3.333	6	2	1 : .333
I 7	17-60	8	19	1 : 2.375	14	10	1 : .714
		48	159	1 : 3.3125	97	91	1 : .938
DACTYLO-EPITRITE.							
O 3	13-38	5	9	1 : 1.8	7	5	1 : .714
O 6	29-70	6	18	1 : 3	12	14	1 : 1.166
O 7	27-76	6	21	1 : 3.5	9	20	1 : 2.222
O 8	31-53	4	5	1 : 1.25	7	5	1 : .714
P 3	7-58	4	24	1 : 6	13	18	1 : 1.384
P 4	70-262	37	66	1 : 1.783	57	61	1 : 1.07
P 9	5-70	6	13	1 : 2.166	14	16	1 : 1.143
P 12	6-23	2	7	1 : 3.5	4	5	1 : 1.25
N 1	35-72	4	14	1 : 3.5	6	12	1 : 2
N 5	9-39	9	8	1 : .888	5	9	1 : 1.8
N 9	11-27	5	5	1 : 1	5	8	1 : 1.6
N 10	4-18	0	9	0 : 9	3	4	1 : 1.333
I 1	17-31	3	4	1 : 1.333	4	1	1 : .25
I 3	15-37	2	7	1 : 3.5	5	1	1 : .20
I 4	19-42	0	6	0 : 6	5	1	1 : .20
I 5	24-56	1	13	1 : 13	4	10	1 : 2.5
	Total Dactylo-Epitrite	94	229	1 : 2.436	160	190	1 : 1.1875
	Total Logaoedic	48	159	1 : 3.3125	97	91	1 : .938
		142	388	1 : 2.732	257	281	1 : 1.093

It will be seen at a glance that the aorist preponderates in both classes. This is the rule everywhere, must be the rule in lyric poetry. The lyric poet is unrelenting. He does not linger, he only touches on the *κεφάλαια λόγων* (P 4, 116). It is of the essence of his profession that he is not to weary his hearers; he must speed from theme to theme as a bee from flower to flower, as a ship from shore to shore (P 10, 51), as an eagle from quarry to quarry. We cannot expect the lingering imperfect. Even the slowest measures will hardly tolerate a leisurely unfolding. Only when the long voyage of the Argonauts slackens the flight of the poet, or when he pauses to watch the rearing of Achilles, favorite theme with all the Aiakidai, does the imperfect mount, does the imperfect surpass. The statelier measures, of course, favor the imperfect, but the stateliness of

the measure is often tempered by the brevity of the myth. Most of the Isthmians are dactylo-epitrite, but the story of Aias and his father is a long one for the compass of the ode (I 5, 24-56), and there is a note of impatience at the end (v. 56): *ἐμοὶ δὲ μακρὸν πάσας ἀναγῆσασθ' ἀπεράς*. We must be content with approximate results. Absolute uniformity would be fatal to vitality. If every dactylo-epitrite were full of imperfects, if every logaoedic abounded in aorists, that might gratify a certain sense of the fitness of things. It is enough that it is the rule. The rhythm is not all. We have to consider the bulk of the poem, the proportion of the narrative to bulk. Sometimes the poet says to himself *τρία ἔπεα διαρκέσει*, and that must suffice us even in a long poem.

Pick and choose and you can prove anything. So it might be said that a logaoedic poem will show the highest run of imperfects, a dactylo-epitrite the highest run of aorists. In I 5 (dactylo-epitrite) there is but one imperfect to thirteen aorists. In N 3 (logaoedic) the imperfects outnumber the aorists more than they do in N 5 (dactylo-epitrite). But take all the figures and see how persistently the logaoedics continue on the high ranges. Leaving out Mr. Miller's third decimal place as too cumbrous, we find:

<i>Logaoedic.</i>		<i>Dactylo-Epitrite.</i>	
Impf.	Aor.	Impf.	Aor.
		0 : 9	N 10
		0 : 6	I 4
0 : 4	P 8, N 6	1 : 13	I 5
1 : 9	P 11	1 : 6	P 3
1 : 6	O 13		
1 : 5.50	P 5		
1 : 5	P 2		
1 : 4	O 9 P 10		
1 : 3.83	O 1		
		1 : 3.50	O 7, P 12, N 1, I 3
1 : 3.33	N 7	1 : 3	O 6
1 : 3	O 10 (11). P 6		
1 : 2.50	N 4		
1 : 2.37	I 7		
		1 : 2.16	P 9
		1 : 1.80	O 3
		1 : 1.78	P 4
		1 : 1.33	I 1
		1 : 1.25	O 8
		1 : 1	N 9
		1 : .88	N 5
1 : .77	N 3		

The clustering speaks for itself.

As has been intimated, a careful calculation will not leave out of the account the effect of the durative and complexive tenses outside of the indicative. An aorist infinitive in oratio obliqua is an aorist as much as an indicative aorist, and is selected on the same principle; and it may be maintained that as the difference between ἔφυγον and ἔφευγον is a mere matter of kind of time and not of sphere of time, so aor. subj. φύγω and pres. subj. φεύγω give the same color, the one as ἔφυγον, the other as ἔφευγον. If students are taught to distinguish between aor. and imperf. indic., they must be made to distinguish with equal sharpness between the present and the aor. inf. But after all the indicative gives the main lines and the other moods only the shading; and this comes out very distinctly if we treat the figures already gained in a different way.

If we lump imperfects and duratives as duratives, aorists and complexives as complexives, the difference between the two classes of poems will be reduced. In the logaoedic poems we shall have 145 duratives against 250 complexives (about 1 : 1.72), in the dactylo-epitrites, 254 duratives against 419 complexives (about 1 : 1.65). This is a warning against the straining of a theory, however just that theory may be.

B. L. GILDERSLEEVE.

III.—WORDS FOR COLOR IN THE RIG VEDA.¹

A grave responsibility rests upon philologists. The so-called color theory, which assumes that the human eye was incapable three or four thousand years ago of perceiving certain colors of the spectrum (chiefly green and blue) that are now clearly seen and distinguished, has been abandoned by Magnus, who was in this respect the representative of physical science. Philology, therefore, remains alone in its support of this theory; and it is mainly through the writings of two philologists, Gladstone (on the color-sense in Homer) and Geiger (on color in Rig Veda, Zend Avesta, etc.) that this responsibility has been incurred. The latter author has been received as authority and upheld by Weise (*Farbenbezeichnungen*, *Bezenb. Beiträge* II, 273 fig.), and the essay in question (Geiger: *Ursprung und entwicklung der menschlichen Sprache und Vernunft*, Bd. II, 3tes Buch) is quoted by the non-philological world generally as proving that the disputed colors were *actually* not mentioned in the Rig Veda, and were in all probability unknown at that time; in Geiger's own words, 'the men of that time did not and could not call anything blue.'

Of all the literatures which have been dealt with in this connection, those of Greece and India are paramount in importance, for the others (Koran, Hebrew Bible, Zend Avesta, etc.) are either not so early a growth or are less extensive or less distinctively national.

It is the object of this paper to inquire into the correctness of Geiger's deductions, and in doing this the writer may state at the outset that from an independent investigation of the color words in the Rig Veda he was led not only to question the facts adduced by Geiger, but also to doubt whether his application of these facts (even if proved) be admissible.

In Part I is subjoined the occurrence and application of all color words found in the Rig Veda (Geiger treats in detail only the disputed colors), and in Part II some remarks have been added in regard to the results deducible from the use of color words in the Rik, the methods of Geiger, and the inferences to be drawn from this special study in regard to the color theory in general.

¹ An Essay read before the American Oriental Society in New York, Oct. 1882.

PART I.

§1. On examining the words in the Rig Veda which indicate color, we notice as in other languages that there are a great number of epithets which, strictly speaking, are not designations of color at all, but simply imply or suggest it, and, furthermore, that the optical effect thus suggested is always white, while the simple idea of glancing, shining, dazzling is generally fundamental to this attempt to reproduce by verbal signs the most striking effect which light produces on the retina. Foremost among such words in the Rik are the derivatives formed from the roots *arc* and *bhā*. The first of these gives us *arci*, *arcis*, that which glances, flame (cf. *arka*), and thence *arc*, *arcin*, *arcimant*, *arcivant*, employed as epithet of the *Açvins* and *Maruts* and of the "flaming" stars; the adj. *arcin* in *arcinā padā* seems to indicate the rapid movement of the feet, but in *arcā māsā* it is the shining of the moon that is prominent, and *arcaddhūma* illustrates the adjective force of the participle "(fires) of which the smoke glances." It is possible that we have also in the word *ṛkṣa*, bear, *ἄρκτος*, which Kuhn regards as derived from the same root, an allusion to its gleaming (reddish) color. It is at any rate noteworthy that in the epic poetry we find the same word used to indicate the color of horses distinct from white (*Mbhā* VII 132, 30) *ṛkṣavarṇāḥ hayāḥ karkair miçrāḥ* (bear-colored steeds mingled with white ones). If this be the case we have here an example of what will be noticed below, where words have evolved from a root that contained in itself no idea of color a distinct color sense, through applying derivatives of such roots to objects that have color. The second root, *bhā*, indicates the general idea of glance. The adjectives and compounds derived from it (*bhāmin* of *Agni* and clouds; the substantives *bhās*, *bhāma*; *bhāsas* of *Agni*; *vibhā* of *Uṣas*; *vibhānu* of *Agni*; *vibhāvan* of *Agni* and *Uṣas* with the feminine form *vibhāvarī* of *Uṣas* and as substantive in the later language "the bright," *i. e.* night; *vibhāvasu* of *Agni*) contain no idea of color more complex than that of simple glance or brilliancy.¹ We may say the same of the derivatives of *div* (*dyu*), *dyumat* (of *Agni*, *Soma* and other gods, the chariot, etc., as well as in other applications where it is difficult to say if clearness of glance and tone or beauty in general is meant),

¹Although *vibhāvarī* occurs in the meaning "yellow ginger," yet this use is common to all words meaning night, and the idea of yellow in this application is later and foreign to the Rik.

dyumna (glance) and its compounds, together with didyut and vidyut (lightning), cf. sudyut and possibly sudina (of the day and the morning) unless the derivation from *dī*, shine, be rejected and sudina be only *dina* in composition as *purudina* and *madhyam̐dina*. None of these has a developed meaning, nor is there in the Rik any instance of their use where the simple idea root is not sufficient explanation of the sense. Another root which may perhaps be included under *arc* (= *arj*) shows two distinct inclinations, if we may so speak, first, that expressed in *arjuna*, which preserves throughout the root-meaning of shining, and is applied to the day (*ahar*), the thunderbolt (*vajra*), the dawn (*Uṣas*), etc., in opposition not only to black (*kṛṣṇa*), but also to the yellow gold color (*piṣ-aṅga*). In the same way *rajata*, another derivative from the same root, occurs once in the Rik in the meaning glancing (white), and in the later literature acquires as substantive the meaning glancing-white-metal (silver, compare the unconscious pleonasm of Horace, *argenti splendor*). The other inclination of which we spoke is that shown in *rjra* which stands in relation to *arj* as *ṛkṣa* to *arc*. The idea of glancing passes into that of glancing-red, and even the darker red (distinguished from *rajata* and *aruṣa*) is so indicated, the application of the word being chiefly to horses (cf. *rjraçva*), the celestial steeds, and to fire (compare *rjriya* of *agniyoni*, and *rjiti* of offering, beams, etc., and *rjika* variegated). Of like origin are the words *rajas* the sky, and *rajanī*, night, in reference to the shining stars (cf. *prabhātāyām rajanyām*). Among the verbs of shining, glancing we must include the most frequent of them, *vas*, with its many derivatives (*uṣr*, *uṣ*, *uṣas*, the aurora); the adj. formed from the same stem, *vivasvan*, *vivasvat*, and the possibly connected *usra*, *usriga*, *uṣṭṛ*, *uṣṭra*, all of which unite the idea of glancing to the indistinct suggestion of the red glow of morning, and so substantively the dawn; or to that of the red gleam of ox and steer, etc., and so substantively ox, buffalo. But in all these cases simple glance is the fundamental meaning.

Bhrāja from *bhrāj* (fulgeo) used of the sun (cf. *agnibhrājas* = *ignis fulgor*, and *bhrgu*); *rājin*, contained in *a-rājin* of mountains; *pājasvat* from *pājas* (*sahasra*°) gleam (cf. *pr̥thu*°) are not used often or clearly enough to see if any idea further than that of glancing has been reached by them. Two more examples complete this list where the color idea is marked enough to be noted by the addition of that word (*varṇa*). The first is *candra* from *cand*, to shine, especially called the *candravarṇa*, and this developed color

is not reddish but yellowish, so that it is the moon-color, as, indeed, *candramas* is the moon and *candram* is gold. It is used with *hiranya* (golden) of divinities, garments, fire, etc. (cf. *hariścandra*, *çcandra* being the older form of the word). It is found again compounded with *puru* (*puruścandra*) of deities, sky and chariot. Like the *candravarṇa* is the *ruçanvarṇa*, from *ruc* to glance, which characterizes the (yellow) glancing soma. From the root-meaning shine which appears in *ruc* and its derivatives *rukṣa*, glancing (of Agni) *roka*, light, *virukmat*, *viroka* (once in *viroke uṣasas*) and *virokin*, the glancing (of divinities) we find an apparent approach to distinct color in *rukma*, the shining (-yellow, gold) and in the ptc. form *ruçat* (λευκός) which is, as color, opposed to *çyāva* (brown) and *kṛṣṇa* (black) and is particularly termed a color in the compound with *varṇa* given above, with which we may again compare the compounds *ruçatpaçu* (*uṣas*) "who has glancing herds," referring to the red or yellow clouds (cf. *ruçadgo*, *ruçat* of *dhāsi*, milk, and *ruçadvatsa*) and *ruçadūrmi* (the fire) "which has glancing yellow or red waves (flames)." Other forms in the Rik are *vasuruc*, *vasurocis*, which (whether from *Vasu* (B. R.) or *vasu* as simple adj.) exhibit the two roots *vas* and *ruc* compounded together.

One root is found, the primary signification of which is doubtful: *çvit*, if it mean simply to shine, belongs here. B. R. give the meaning "be white," while Weise, in the essay referred to above, insists on the fundamental meaning "to burn." The adjective formed from this, *çveta* (opposed to *kṛṣṇa*, cf. *Zend spaeta*, Gothic *hveita*, Eng. white) means simply white, and is so used as epithet of the gods, the white steeds of Agni, the *kalaça* (elsewhere *hiranyasya kalaçaḥ*), while in later literature applied to *parvatāḥ*, the mountains, *çveta* describes the appearance of the snow. So too *çvitra* is later the white leprosy and *çvitriṇ* in *Manu* is leper. Compare with these *çvitici*, *çvitna*, *çvitnya*, *çvityaṅc*, *çvetya*, and also the substantive *çvetanā*, the lighting up of the dawn (like *sūryaçvit*). In all these words whiteness is the color expressed, if indeed any real color is expressed (*sūryaçvit* contains a second idea of glance in so far as *sūrya* itself is ultimately only the glancing, *svar-sūr*). On the other hand the form *çyeta* seems to mean reddish white, as the feminine *çyeni* is the aurora, and the adj. itself is applied to the colors that appear at the rising and the setting of the sun, and to the fire. In *çyena*, eagle, we have possibly the same word. According to Indian authorities *çyeta* itself is regarded as equivalent to *çveta*, white. Whether *çyāma*, black,

is from this root is doubtful, the word does not occur in the Rik, and the apparent contradiction of white and black could be explained only by granting Weise's proposed rendering of *çvit*, etc., as denoting the color of burning (glancing and thus white) and burned (so black) as in Germ. blank against Eng. black.

There are, however, other methods of forming adj. of color than by developing the idea of red from roots meaning glance. Weise has sought to prove that the original and most primitive color words arose from roots which signify to burn (namely, *çvit* and *ghar*), but in the Rig Veda we cannot resolve the roots meaning "shine" back into a more primitive "burn," except in isolated cases, and outside of these we find other roots which have at first neither of these ideas, but which form similar color words. Among these are the derivatives from *ci*, *ki*, and *cit*, where the original meaning is that of perception. From the idea 'this object is perceptible,' we have as the next step 'this object is conspicuous, bright,' and so we arrive at the idea of brightness, glance, gleam, and this in turn develops into the more distinct notion of color. In such examples we have, to be sure, the idea of glance preceding that of color, but not as the ultimate meaning. So *citra*, from *cit*, is used to characterize gold, garments, chariots, as well as divinities and the sky (cf. *ex gr.* I 115, 1, *citram devānām anikam*), while in the post-Vedic language it means variegated. Other Rik forms from this root are *cetana*, *cetas*, *vicetas*, where the meaning is uniformly that of bright, sparkling. Similar is the growth of those words of which *ketu*, glancing (banner), is a specimen, from *ci* (*ki*) to perceive; cf. *ketumat*, *sahasraketu* (of the chariot of deities). It may be questioned whether real color enter into the meaning of these derivatives at all, as they stand in relation to the developed root meaning shine much as *candidus* in Latin does to *candeo*.

The same process whereby 'perceptible' develops into 'glancing' and possibly thence into an idea of color, is gone through with by roots meaning 'be pure.' Thus *çundhyu*, bright, clear, used as epithet of the sun's horses, is derived from *çudh* (*çundh*) purify (*καθ-αρός*). Thus also from *pū* (Lat. *purus*) to be pure, clean, we have *pāvaka*, used of Agni, Varuṇa, Aurora, etc., not only to denote "purifier," but also to express the gleaming color-effect which is more expressly indicated in *pāva*, found, as it is, only in connection with *hiraṇya* (golden), to describe the soma (*hiraṇyapāva*). Like these words which denote brightness by an idea of purity are the negatives *adhvasvan*, *aripra*, *arepas*, used of physical

objects and meaning literally spotless. With all of these we may place the root *çuc* and its derivatives often employed in union with *pāvaka*. The noun *çuci* and the adjectives *çukra* (*çukla*) denote glance, brightness (cf. *çucivarna*, *çukra-varṇa* and substantive *çocis*, *çoka*, etc.) and express the idea of brightly adorned, as does *çubhra*, a similar word meaning either clear-shining or well-adorned, and, in the later language, white, while in *çoṇa* (especially of fire and the steeds of the deities) we have the idea of red predominating, which later gives the neuter substantive *çonitam* the meaning blood. It is, however, doubtful if *çoṇa* be connected with *çuc* at all.

Again, in *çukrapīṣ* we have another train of thought in developing the color idea. This *piṣ*, which in *piṣaṅga* and *piṣaṅgarūpa* has developed into the meaning gold-color (cf. *hiraṇyapeṣa*) or yellow-brown (contrasted with *arjuna*) and characterizes divinities, rays of the sun, etc., has as ultimate meaning the idea "adorn," prepare (by cutting), decorate, as in *peṣa* and *supeṣa*, and this decoration is applied to color in *piṣaṅga* (and possibly in *piṣa*, the (red) stag. Possibly the same idea is to be found in *suṣilpa*, once applied to day and night, from *çilpa*, adornment, in the sense 'well-adorned,' and so 'many-colored' (so B. R.)

Beside these we find in one, perhaps two forms, that the idea of sharpness may be capable of a similar development. The first of these is *tejiṣṭha*, properly a superlative adj. from *tij*, be sharp; from the meaning of very sharp we have first the idea of hot and then of sparkling. The primitive idea is seen in its application to the rays of the sun which are sharp or hot, while in limiting water (*soma-drop*) we have the transformation into glancing; the gleam is piercing bright, cf. *dhārā agneḥ* the glare (sharpness) of fire. Possibly too, *tapu* may belong here.

Under *çvit* we have purposely omitted *çiti* in its Rig Veda compounds *çitipad* and *çitiprṣṭha* (the word is not found in the Rik uncompounded). It is doubtful if this word is derived from *çi*, burn (*çuçvit*) or from *çā*, to sharpen (so Grassmann). Not only the derivation but even the meaning of this word is matter of dispute, as it may mean either white or black (v. above under *çvit*). *Çitiprṣṭha* is applied to the steeds of Indra and figuratively to milk, *çitipad* is epithet of chariot and the brown-steeds (*çyāva*) of Savitar. The assumed double meaning of *çiti* may have been the result of the later *çitikaṇṭha* used with *nilakaṇṭha* as epithet of Rudra. In the later form *çita* B. R. assume a confusion of *ç* with *s*, *sita* being a

post-Vedic word for white. Another development of the glancing, shining idea (if not of positive color) is to be seen in *tviṣīmant*, *tveṣa* and the substantive *tviṣi*, where the simple root denotes only rapid movement, and thence glance. These adjectives are applied to fire, the countenance of the Maruts, the rays of the sun, etc., while the substantive expresses an attribute (glance) of fire and sun.

We leave this division with the remark that *rudra*, which in Grassmann is said to mean glancing, must, to effect this, be derived from a suppositious root, *rud* to shine, and *phalgva* (*phalgu*) said by Grassmann to be 'reddish' is defined by B. R. in accord with its derivation from *phalgu*, weak, worthless.

§2. We pass in this division to those words where the first color of the spectrum, red, begins to be indicated by direct comparison with red objects. First we mention *agnirūpa*, fire-color, like *agni-ṛi* (of the glory of fire), *ṛi* itself (cf. *hariṛi*) meaning glory, beauty. Both of these terms are applied to the storm-gods, like *varcas* (glory) and its compounds. So *indhanvan*, having the brilliancy of lighted fuel, and *indhana* (cf. *αἶθεων*) of the clouds (*dhenu*). The root *indh* means to burn, to light a fire. Similar in sense is *aṅāra*, a coal, so called from its fiery appearance (*aṅj*, adorn, glow, shine, Grassmann) and in the later language one of the names of the "red planet Mars." Perhaps the best of the few examples in this list is *rohita* (later *lohita*), from the root **rudh*, to be red, which underlies *rudhira* (A. V.) blood. The shorter form *rohit* appears as feminine substantive in the meaning 'red mare,' and the feminine *rohiṇi* shows a like usage. The short form occurs again in the compound *rohidaçva*, and as adjective *rohita* is generally applied to cattle and horses (*hari*, *praṣṭi*, *vājin*); while substantively *rohita* means a horse, just as *lodha* (from the form with *l* like *lohita*) means a red animal. *Kalmalikin*, said to mean flaming, as epithet of *Rudra*, is derived from *kalmali*, gleam (*vielleicht glanz* B. R.) which occurs in A. V.

Together with these we may place the word *su-kimçuka*, derived from the *kimçuka*, a tree with red blossoms. The adj. thus formed by the prefix *su* (*εὖ*) is said by Grassmann and B. R. to mean 'beautifully ornamented with blossoms of the *kimçuka* tree.' The adjective occurs, however, only as epithet of *sūryā* (figuratively as *çalmali* with the epithets *viçvarūpa* and *hiraṇyavarṇa*) and in the *Nirukta* (quoted by B. R.) the adjective is explained by *sukāçana*, fair to see. It seems to me probable that we have here a direct

comparison with the main characteristic of this tree—its red appearance, as in the following with the characteristic of gold (*hiranya*). This use we may illustrate from the later language, since the form is so isolated in the Rig Veda, and by comparing the epithet with Mbhā. IX 58, 34, we can understand how the red blossoms of this tree provoke a direct comparison of color. The epic passage is as follows:

. . . rudhirenā 'bhisamplutau
Dadṛçāte himavati puṣpitāv iva kiṁçukau.

(The two warriors) dripping with blood looked like two *kiṁçuka* trees blooming on the mount of snow; or again, XIII 30, 43: "down fell the warriors, wet with blood their limbs, like two *kiṁçuka* trees cut down." Like this is also XII 166, 62-3: "And the foul earth grew all filled with bodies dripping with blood like hills with *kiṁçuka* trees." So in the Rig Veda passage it seems to me that the *tertium comparationis* is rather the fiery red common to both the sun's chariot and the tree's blossoms. We have in another form *sūryatvac* (cf. *hiranyatvac*) an attempt to express the color of the Maruts by referring their appearance to that of the sun, cf. *sūro varṇah* (IV 5, 13) and the two forms *sūryaraçmi*, *sūryaçvit*; and this word expresses also the glance of a chariot or the radiance of a goddess.

§3. Words for red and yellow, or reddish-yellow, which are not the result of comparison with physical objects and are not derived from roots meaning glance, etc.

Foremost among these is *aruṇa* (cf. *aruṇapsu*) red, bright-brown, golden-yellow. Any distinct standard whereby we may estimate the exact worth of this adjective is wanting. It is applied to the dawn, the sun, the soma (plant), the color of the wolf and cattle, and means as substantive the red-yellow cow (dawn). As compound adj. it appears in *aruṇāçva*, of the horses (cf. *aruṇi*) of the Maruts, and as *varṇa* (I 73, 7, *naktāca cakrur uṣasā virūpe kṛṣṇamīca varṇam aruṇamīca saṁdhuḥ*) is the glow of dawn in antithesis to the blackness of night. Similar to this in form and meaning is *aruṣa*, which is the fiery red of the thunderbolt, the fire, the steeds of Agni (cf. of Agni *aruṣastūpa*, with red flame), the sun, the dawn, and is found like *aruṇa* in the fem. as substantive, *aruṣī*, meaning red cow (dawn). *Aruṣa* (in *aruṣahan*) is perhaps (B. R.) only another form of the same word. With both of these compare the compounds *tryaruṇa*, *tryaruṣa*, the first being a proper name, the second used as epithet of cattle, 'red in three places.' With these,

and in sense closely related, stands *bradhna*, light red, and yellow which is used as epithet of fire, soma, and of the sun's horses. It occurs but infrequently and with no great variety of application. In an interesting compound of this word (*çatabradhna*) *bradhna* seems to denote the shining metal end of Indra's weapon (*iṣu*). Six colors, we are told (X 20, 9), accompany Agni the fire god: *kṛṣṇaḥ çveto 'ruṣo yāmo asya (agneḥ) bradhnaḥ rjra uta çoṇa yaçasvān*. This list includes many of the words discussed above, and it is safe to say that there is not (with the exception of *kṛṣṇa*, black) one color word here mentioned to which we can give a meaning that will answer all cases; at times applied to yellowish objects, at times to reddish, again to objects partaking of both colors, these words are as vague in meaning and as wide in application as the English use of purple in purple blood or purple grape.

Gaura, which is applied as adj. to milk, is used as substantive to denote a kind of buffalo, and in the frequent expression "*gauro na tṛṣitaḥ piba*" seems to be a general designation of cattle. Latin *galbus* has been compared with this word.

Like the use of the *kimçuka* tree in denoting color (v. above) is that of the *udumbara* (fig-tree) in the once found form *udumbala*, to which B. R. assign the meaning copper-colored, although its use as epithet of Yama's messenger might lead us to compare it with *çyāva*, used of Yama's steed. It is possible that the comparison is not with the leaves but with the yellow fruit. A darker red than any epithet hitherto noted is that in *kapila*, the color of the ape (*kapi*, cf. *vṛṣākapi*) used once of *garbha*. The development of a general color-term like *kapila* from the name of an animal is rather surprising, and Geiger maintains that both *gaura* and *kapila* are indicative of color first and later of names of animals. The inverted process is common enough as we have seen, and many animals are named from their color, just as they are from the sound they produce (*kāka*, *cakravāka*, *kroṣṭṛ*); nevertheless we may compare *pidāku-sānu*, *mayūra roman* (v. next paragraph) to show that the characteristics of animals are used in determining color. Dark yellow or reddish brown is the meaning assigned *kadru* (in *kadrū*) which appears only as substantive, the dark brown or dark yellow soma vessel (cf. *trikadruka*). *Babhru* is a more genuine color word than any of these. It is really the mingled color of dark red brown, but apparently darker than *piṅgala*, with which it is in Sk. frequently connected (*piṅgala* does not occur in Rik, but *piṅgā*, bow-string, is referred to *piṅga*, yellow, apparently the same as *piṅgala*).

Its use is varied, being applied to Agni, Rudra, soma, horse, cow, and the (brown) dice (nuts). It is distinguished from *aruṇa* *bradhna* and *hari*, and is used substantively to denote certain plants.

As the last word in this category we have the root *ghar*, to burn (cf. *gharma*, heat) which develops in the adj. forms into a color meaning. The idea of burn or burned is the real basis of the color idea, for this idea does not come through the meaning glance and sparkle, but is the fire color itself. The word is, however, peculiar in its application, especially in later Sanskrit, having there the meaning green as well as reddish-yellow. The first group of derivatives comprises *hari*, *harita*, *hariṇa*, the second (with stem-vowel weakened) *hiri* and *hiranya*. The prevailing meaning in all these words is yellow, fallow, and, in general, any change from this meaning seems to incline rather to the lighter than to the darker end of the spectrum, or, to speak more correctly, the underlying notion of burning, fiery, includes at first red and yellow, and, though use has almost confined the application to the latter, yet the former meaning is also occasionally brought into prominence. The most frequent use of the short form *hari* is in the dual as substantive to denote the two steeds of Indra (cf. *haryaṇva* of Indra), and these receive in turn epithets which show that these steeds are regarded as yellow, red, or whitish (*aruṣa*, *rjra*, and the once used *rohitā hari*, together with *ṣitiprṣṭha*, v. above). *Hari* is applied again to soma, which as plant or moon is yellow (though elsewhere soma is called *aruṇa*, *babhru*, *rjra*); cf. IX 97, 9 (*somaḥ*) *divā harir dadrṇe naktam rjraḥ*—the moon looks pale-yellow in the daytime but reddish at night. To the soma itself *hari* is applied as limiting the *amṛu* (plant), *indu* (drop of the plant), and to the press stones (yellow with soma juice). Beside this frequent dual form we find singular and plural used to characterize the steeds of Agni, the sun, Savitar, the wind (*vayu*), the *Aṇvins*, and soma (moon), or the gods are conceived as steeds and receive the same epithets, or *agni*, not as god, but as fire, and *vajra*, the thunderbolt, are so called. The form *harit* (fem.) is used (like *aruṣi* and *rohit*) to denote the red or yellow mares of the sun, Agni, Indra and Soma, or the fingers spoken of metaphorically as steeds. *Haritvat*, gold-yellow, is epithet of the glory, brightness of the sun (*haritvatā varcasā*) where, if *varcas* itself means brightness, we may translate "by the glaring gleam."

The longer form *harita*, fem. *hariṇi* (cf. *hariṇa*, gazelle, fallow-

deer) occurs less often than hari, but in somewhat wider application, although applied like the other form to the divinities and their steeds, with the fem. dual hariṇī used in the same way as hari. Harita thus limits the āyudha or vajra, thunderbolt, the ape (in vṛṣākapi), the chariot of Indra, the rūpā, forms of the gods, the mouths of the press-stones (as steeds), and, referring to soma, serves as epithet of ruc, glance, ṛṅge, the two horns, and ṣiprā (lips, vizier) of Indra. It is used too as adjective to vanaspati, the sacrificial post, when accompanied by the epithet hiraṇyaya, the golden. The meaning blond or auburn may be assumed for harita ṣmaṣṭūṇi, the yellow or reddish beard of Indra. Once, too, we find the word employed to indicate the fresh wood as opposed to ṣuṣka, dry wood. Here it would seem we had a meaning approaching that of the later language, but harita is applied apparently to the trunk of the tree, not the foliage (cf. hariyūpa in hariyūpiya, the name of a place which 'has golden posts').

Harita is also applied to the frog (maṇḍūka) where we would naturally translate the word by green rather than by yellow. Omitting, however, the pair of cases where the frog is spoken of without regard to his color we have (in VII 103, 4) an antithesis between the frog that is prṇi (speckled) and the one that is harita, and also (ib. v. 6) "the frogs have a like name (samānam nāma)," but 'prṇir eko harita eka eṣām," and (ib.) the adj. virūpa, variegated, is applied to them. The "speckled" frog is so probably by reason of his black spots, the harita may therefore, as far as this passage shows, be taken in its earlier sense of yellow or its later one of green.

Prthivī, the earth, is called in III 44, 3, harivarpas, which signifies according to B. R. "presenting a yellowish greenish appearance." The verse reads: Dyām indro haridhāyasam, prthivīm harivarpasam | adhārayad . . . This passage Ludwig translates "he has taken possession of the heaven that sends (us) down the green, and of the earth which has a green covering." And we must admit that the earth here receives an appellation which we could in later literature unhesitatingly render "green," and such meaning is not impossible here, though from the rest of the hymn it would be more natural to give the same meaning in this word to hari as in the neighboring haryaṣva and similar compounds which are used so often in this hymn. The same form (harivarpas, in X 96, 1) occurs as epithet of Indra.

From I 50, 12, where the singer desires his (yellow) jaundice

(hariman) shall pass upon the parrots, Geiger seems to draw the conclusion that the (green) parrots are regarded as yellow. But the color is not spoken of as passing over to the parrots, all parrots are not green, and finally the same disease is desired for the hāridrava, an unknown yellow bird (from the same root with lengthened stem vowel, as in hāriyojana 'the harnessing of the yellow steeds'). The compounds of these words show much the same usage as the application of the simple adjectives, harikeṣa and hariṣmaṣāru, yellow-haired (of Indra, Agni, and the sun); harijāta, born in yellow red glance (of Indra). We have, too, some compounds where hari as first member means Agni, as harivrata, or Soma, as harivat, haripā, or the press-stones, as haridru and hariṣāc, or the thunderbolt, if harimanyusāyaka be correctly interpreted, or the steeds of the gods, as hariyoga and hariṣṭhā. Like the use of harit is that of hari in hariṣipra, and in hariṣcandra (cf. hariṣrī, mentioned in 1) we have the two roots, one of fire, one of whiteness, united (cf. hiranyacandra). From the other form, hiri, we have similar compounds, hiriṣipra, ṣmaṣru (of Agni and Indra), and hirimant (of Indra) gleaming, to which we have the corresponding form harivant. The form hiri does not occur except in composition, and that but seldom. Hiranya (Zend Zaranya) with its many derivatives is employed in the universal sense of the yellow-gleaming metal (gold), and since this meaning is universal we note only those compounds which may illustrate the compounds of hari. Thus this word is also compounded with keṣa (hair) to describe Agni, and hiranyaya is an adjective applied to cattle, thunderbolt, etc. So hiranya-rūpa or hiranya-varṇa, gold-color, which underlies the meaning of hiranyākṣa, golden-eyed, of Savitar, is like the use of hari in Rig Veda when applied to the persons of the divinities (haryakṣa, however, is post-Vedic and in epic, Mbhā X 1, 38, means yellow-green-eyed: [so'paçyat] ulūkam haryakṣam babhrupiṅgalam).

§4. We come now to the second color that our forefathers are said to have "had no name for, because they could not distinguish it from black, grey and brown" (Geiger, *bd.* II, s. 356). There is but one word under discussion, nīla, which means in classical Sanskrit dark blue. Geiger asserts that in the Rig Veda this word means only black or dark-brown, and even in the later epic he would prefer to understand grey as the meaning of the word (s 307). The Petersburg lexicon defines nīla as dark-colored, particularly dark-blue, blue-black. Before entering on the discussion

in regard to the Rig Veda we would like to point out its exact meaning in the later literature, as the cases where the word occurs in the Rig Veda are few. On glancing over the various compounds of *nila* found in the classical literature we see at once that the prevailing idea is dark-blue, and that the meaning "blue" is so inherent in the word that the accessory notion of *dark* easily vanishes, whereas the meaning *blue* remains, so that we may often render the word simply as blue, but never simply as black. Especially where *nila* is introduced into languages that have no affinity with Sanskrit this prevalence of the blue is conspicuous, as, for instance, in Tamil, where to-day *nila* is synonymous with sky, *i. e.* the blue. But even in pure Sanskrit the *nilavarṇa* is blue, and in the substantive form *nila* is synonymous with the blue-water-lily or the blue sapphire. Generally, however, the word denotes a darker blue, as in expressing the color of the snake's back, the waters of the sea, the neck of the peacock (cf. *nilakaṇṭha*, *nilagrīva* of *Çiva*), or the indigo (cf. Rood, *Modern Chromatics*, p. 21). The form *nilaka* has the same meanings, though used perhaps more decidedly in the sense blue than dark-blue. The derivation of the word is unknown, for its assumed connection with Lat. *niger* (Geiger, s. 306) is at best but a guess. If we turn from the classical to the Vedic use we find first that *nila* in the Atharva Veda is distinguished from *lohita* and from *piṅga* (red and reddish-brown) and occurs in a few compounds, of which the exact meaning is doubtful, although they *seem* to denote more the dark than the blue color, but as both these forms (*nilaṅgikaṇḍa* and *nilanakha*) are mere names of demons, the latter being distinguished from the green or yellow demons, called *harita* (19, 22, 4 and 5; *nilanakebhyaḥ svāhāḥ*, *haritebhyaḥ svāhāḥ*) we can assign no exact meaning to the adjective (*nilaṅgikaṇḍa* is like *nilalohita* an epithet of *Çiva*). In the same way *nilam udaram* (15, 1, 17) is opposed to the *lohitaṁ prṣṭham* of the anthropomorphized deity, as in *Çat. Br.* *çukla*, the gleaming white is distinguished from *nila*, where, however, black is not necessarily the meaning of *nila*.

Geiger and Weise assume that this word *nila*, which may occasionally mean dark without reference to blue (?), but which in the majority of cases in the later literature has a distinctly blue tone, is, in the Rig Veda, entirely devoid of the meaning blue. If, now, the derivation is unknown and the word everywhere except in the Rig Veda appears to mean dark blue, and even blue alone, it will be necessary, in order to support Geiger's statement, to prove that

nila in the Rig Veda is applied in such connection that it is here impossible to attribute to the word any meaning of blue at all.

We examine then the use of nila in the Rik. The word never occurs alone, but always in composition. First as adjective with the suffix -vat, nilavant, the word is used once as epithet of drapsa. If we isolate the word from its connection we could here learn nothing of the meaning, for drapsa (literally *drop*) is elsewhere called white (ṣveta), black (kr̥ṣṇa), and red (aruṇa). The use is here, however, metaphorical, and drapsa means the spark of the fire, the verse in which it is contained being part of a hymn to Agni (VIII 19, 31): "Thy spark, O Agni, is nilavān, kindled in good time." Now we connect no especial idea of darkness with a spark of fire, and if we compare this passage with VII 87, 6, we find *drapsa* is used metaphorically of the moon and receives the epithet ṣveta, the white, the shining spark in the sky. Since in the first passage the time of lighting the fire is meant, I have thought it possible that nilavān here might betoken the blue color of the first small flames that arise when wood is kindled. Not insisting on this, however, it remains to be proved that the spark of a newly kindled fire is black or dark—yet such must be the meaning if Geiger is correct. Nilavant occurs in one other passage as epithet of sadhastham, place, home, refuge. It is, however, questionable whether the word which belongs in this passage can have any influence on the discussion at all, for if we read with Müller's large edition, nilavant, we have an entirely different word meaning nest-like (so understood by Sāyana). The former reading nilavant is, however, introduced into Müller's small edition, and is endorsed by the Petersburg lexicon. Regarding this reading as correct, we find that in the passage in which it occurs the poet is speaking of Br̥haspati, who is said (IV 50, 4) to be arisen out of light, and (II 23, 3) to be the enemy of darkness. We are therefore inclined at the outset to be sceptical, when we are asked to believe that in this passage (VII 97, 6) the same god is represented as one whose strength is a *dark* place, nor are we more inclined to believe this when we examine the whole passage: tam aruṣāso aṣvā br̥haspatim . . . vahanti sahaṣcid yasya nilavat sadhastham nabhona rūpam aruṣam vasūnāḥ, *i. e.* "red steeds carry this Br̥haspati of whom the power is a place nilavat, being clothed as with a cloud in red color." In the following verse we are told of his golden weapon, and the whole picture of the god is one of bright color and glance. Why then should his strength be a place of darkness? It is not here the picture of a

god of light born from the darkness that precedes the dawn. With this idea we are familiar, but here we have *sadhasstham*, either a place of refuge for those who invoke the god, or his place, his home (as in A. V. II 2, 1, *divi te sadastham*) is itself a source of strength. In the latter case we might translate: "Bṛhaspati whose strength is the dark blue place," *i. e.* the sky. But however we take *sadhasstham*, what sense do we make from the passage by translating *nilavat* dark-colored?

Beside these cases *nila* is used twice (III 7, 3, V 43, 12) in composition with *prṣṭha* (back) as epithet of Agni. *Nilapṣṭha* has been translated "he whose back is black," *i. e.* the fire. We are accustomed to the idea of black in connection with fire, for we have it, for instance, in the passage quoted in §3, where the path of the fire is black (*kṛṣṇa*), and such compounds as *kṛṣṇā-yāma*, *kṛṣṇa-vyathis*, *kṛṣṇa-vartani*, *kṛṣṇa-sita*, *kṛṣṇādhanvan*, give the same idea of the black path. But in all these expressions the adj. is invariably *kṛṣṇa*, and the substantive invariably means the track left by the fire (so too in *kṛṣṇa-pavi* and in the doubtful passage I 141, 8, *kṛṣṇāsas sūrayah*) while in *kṛṣṇagarbha* and *kṛṣṇa-yoni* the darkness out of which the fire comes is meant. We have, moreover, direct testimony to the effect that the "back" of Agni is not regarded as dark, but as light: I 58, 2, *prṣṭham pruṣitasya rocate divo na sūnu*, the back of the fire shines like the back (vault) of the sky. Even could *prṣṭha* refer to the track of the fire it would not prove that *nila* is here dark, for the path of Agni is also regarded as glancing, cf. *citra-yāma*, of Agni (III 2, 13). This same compound is employed to characterize the *hamṣa* (pl.), a bird variously described as goose, crane, swan, flamingo, etc. In VII 59, 7, they are described as *nilapṣṭhāḥ*. Whether *nila* here means dark-blue or black remains an open question, but that the compound must necessarily mean dark without any idea of blue cannot be proved. The *hamṣa* as steed of the Aśvins receives the epithet golden-feathered (*hiranya-parṇa*), but this is figurative. *Nilāṅga* is a later name for the Indian crane (from this same *nila* + *āṅga*, limb) which is said to be bluish in color; and *nilākṣa* is said to mean the goose from its (not dark but) blue eye (*akṣa*). Altogether, dubious as the case is, the similar usage of the later language might lead us rather to incline to the meaning blue than black.

These are all the cases in the Rig Veda in which *nila* occurs, excepting one passage (X 85, 28) where it is found compounded

with lohita (late form for rohita); and, as Geiger says, the passage is probably taken from the Atharva Veda, as it is identical with A. V. 14, 1, 26. Even if genuine, and if lohita were not itself a suspiciously late form, we should learn nothing from the passage of the color of nila, for reference is made to bewitchery, *kr̥tyā*, and the verse states that the color of this power is red and nila, which might be black, blue or any other color. It is from the fact that the sky is not called blue in the Rig Veda that Geiger doubts if blue was known as a color, and after examining the use of nila he draws from the above few, and, if I am not mistaken, in part contradictory data the conclusion "blue was not mentioned and was not known in the time of the Rig Veda, but develops out of the idea black or brown, the only meaning that nila can there have." The facts of the case are, however, that the word for dark-blue occurs in the Rig Veda, and Geiger has not proved that this customary meaning is impossible in the Vedic application of the word. Why the sky is not called blue will be discussed in Part II.

§5. Without any notion of lighter color is *çyāva* (dark-brown), employed as epithet of horse and chariot, and substantively as (brown) horse, nomen proprium, and (in the feminine form *çyāvī*) the brown mare, the night. It is contrasted with red, rohita, and white, *çiti(-pad)*. The later post-Vedic word *çyāma* (dark green or dark blue) appears to be a related word.

Blackness, or darkness (*andhas*, *tamas*, cf. *andha* with *tamas*, and *tamīsrā*, night) is often implied by negation of light, as in *aruc*, *arājin*, *acitra* (cf. *aketu*), while black itself is denoted by the adjectives *asita* (*sita*, white, does not occur in the Rig Veda) and *kr̥ṣṇa* (*varṇa*). The latter occurs in many compounds, and the feminines *kr̥ṣṇā*, *kr̥ṣṇī* are used as substantives to denote the blackness of night or night itself. *Kr̥ṣṇa* as proper name is equivalent to *Rāma* (the dark), and its related *rātrī*, night.¹

§6. It remains to say a few words in regard to some designations which come under none of the above heads: *palita*, grey, and *palasti*, said by Sāyana to be the same as *palita* (in *palastijamāgni*) means the greyness of years, as substantive (pl.) grey hairs. We have several words and expressions meaning varie-

¹ Night, as we have seen from many examples, may be termed either the dark or the bright, according as the dominant idea is that of gloom on earth or of light among the heavenly luminaries. In *doṣā* and *pradoṣam* (evening, darkness, opposed to *uṣas*, dawn) Grassmann sees a derivative from *duṣ*, to spot, darken.

gated, as *ṛjika*, *vi-rūpa*, *viçvarūpa*, *puru-rūpa* (cf. X 169, 2 [*gāvah*] *yāḥ sarūpāḥ virūpā ekarūpāḥ*) used especially of the cows, but also of the cloud, milk, sun, frog, snake, etc. So *pr̥ṣant* (*pr̥ṣati*) spotted (sprinkled), of the cows, the clouds, Maruts' steeds, etc. *Çabala* is used in the same way of Yama's dogs (cf. *Udumbala*) and *çarvarī* are the variegated steeds of the Maruts (cf. B. R. s. v.); so, too, *kilāsi*, properly leprous. In *mayūra-roman*, said of the steeds of Indra, we have an attempt at color-description that reminds us of *kapila* (v. above), literally the word means "peacock-haired," that is, many-colored. Like the compounds of *rūpa* is *spṛhayadvarṇa* (II 10, 5) literally "striving after color," i. e. changing color, of Agni; but *varṇa* does not occur compounded with *vi*, *puru*, *viçva* (and is therefore a later word for color than *rūpa*?). Both *rūpa* and *varṇa* denote color, as in *sa-rūpa sa-varṇa* (of like color), *su-rūpa (vi-ṣu-rūpa) su-varṇa*, (of good color, cf. *sudṛçikarūpa*). *Vyeta* (f. *vyeni*) is strengthened from *eta* (f. *eni* and *etā*) with the same idea of many-colored, used of *Uṣas*. Strength of color is denoted by *vi* in composition, or by the accompanying adverb *bṛhad*, strong, as in *bṛhadbhānu*, or by *rabhasa*, as in *rabhasāna*.

The word *madhu* (sweet, honey) is compounded with *varṇa* (color), and characterizes the *ghṛta*, melted butter, *Açvins*, and chariot. This *madhuvarṇa* may mean, as *Sāyana* says, "having an agreeable color," or we may take it more literally as "honey-colored."

PART II.

We find from this investigation that the use of color words in the *Rig Veda* is not unlike that in other poetic literatures. The light colors predominate in frequency of occurrence and breadth of application. All that glances, glares, sparkles, is more frequently described than that which is dark and gloomy. Light and dark are the broad general antitheses, real color is less often mentioned, and to fix any exact standard for these colors is impossible, as this is forbidden by the general meaning of the root, or by the uncertainty we are in in regard to the real color of the objects described. It is, finally, impossible to mark off distinct meanings for the majority of color words used in the *Rig Veda*, as no one color term is precise enough to answer to any one spectrum color; an indefiniteness that lies, however, in the language alone, since we have no proof that such indefiniteness was the result of physical

inability to distinguish between the various colors or shades of color which in the literature are grouped under one universal term. In regard to the disputed colors, we have two words, hari (harita), and nila, which in the later literature may mean, on the one hand, yellow and green, on the other hand dark and (dark-) blue. A few cases render it possible that the later meaning of these adjectives *may* exist in the Rig Veda; that such later meaning *cannot* exist in the Rig Veda is neither proved nor disproved. Unless nila include the idea of violet we have no term for this color in the Vedic literature.

We pass now to a discussion of Geiger's theory in regard to the explanation of the infrequency or, as he would say, the absence of those terms which denote green and blue. Before criticizing this theory from the standpoint of the Rig Veda, I would call the reader's attention to a few statistics on this very point drawn from much later literature.

In Milton's *Paradise Lost* we have all the light gleaming colors used in abundance, chiefly red and yellow, especially in union with lurid, dazzling, etc., whereas green is mentioned but fifteen times, only nine places show purple (which is indefinite and may mean red, of blood and roses, or blue-black, of grapes), and the test adjective, blue, is found but once (XI 206), although the lapis lazuli is occasionally made to do duty as blue in the term "azure." In the rainbow Milton sees "three listed colors" (XI 866, 897). Going back to the thirteenth century we find in the use of color words in the *Nibelungenlied* a still better proof of how fair an index of ocular development is given us by the employment or non-employment of certain colors in the literature. For here red is, as proved by the overwhelming majority of cases, the favorite color word. Yellow occurs less often, and a pure color word for yellow occurs but once, the idea being generally suggested by comparison with gold. Green is mentioned only four times, but never except in the fixed expressions "green as grass," "greener than grass" (graz or klê), applied to jewels, marble and silk, but never to fields, trees or mountains. Finally, in the 9516 verses of this poem we have not a single mention of blue, although every opportunity is presented the poet for describing sea and sky by this color.¹

¹ The precise use of color words in the *Nibelungenlied* is as follows (the numbers refer to the stanzas in Bartsch's edition): The chief verbs denoting glance and shine are *liuhten* and *schînen*; glancing is denoted by *licht* (adj.)

Prof. March (in his essay before the Am. Phil. Ass. in Cambridge, July, 1882) has told us that in *Beowulf* (circa 7th century) no word occurs for blue or green. It may, if I am not mistaken, be added that in the *Heliand*, about the same time, there is no word for blue.

I now return to the *Rig Veda*. Weise says, quoting from Geiger the statement that fields and fruits are often spoken of while we never hear of *green* fields: 'All, at first, was vague in color, but gradually a difference was perceived, and men were compelled to find some term to express this newly observed appearance'; and again: 'green was for a long time regarded as yellow.' Geiger himself (*Bd. II*, s. 305) says of the period represented in the *Rig*

and (adv.) *lichte schinen* (2006); as noun *licht* is candle (1005). The adj. (to which, in 80, the word *gevar* (color) is added, in *waete licht gevar*) is applied to cloth, garments (*kleit, wât, gewant*, 572, 80, 363, 586), *pfeelle* (570, 833), *porte*, *gewührte* (429, 573), precious stones (586, 1783), *bant* (von *golde*, 1654); weapons and armor (*helm*, 1783, 1744, 205, *helmvaz*, 2279), cf. *helmenglanz*, 1841, and *goldvaz*, 1328; *schild* (212, 2170, etc., cf. *der liechten schilde schîn*, 1602), *ringe* (214, 2218), *swerte* (233, strengthened by *vil*, 1972), *brünne* (66, 406), *wicgewant* (2317, in 1597 *wicg*. "in herlicher varwe"); *furs*, *riuhe* (954): again, used of flesh (*hende*, 587, *wange*, 618, *ougen* 84, 1286, with *vil* 1069, 1349), the red color of the face (*varwe*, 240); of gold (183, 255, 570) which is red, or of the moon (283, 817, 1620 *der liechte mäne*), of the sun (1624, *lichtez schinen*), the dawn (1360, *den liechten morgen schinen sach*). *Licht* as adj. corresponds to the verb and noun (*schinen*, *schîn*) of glance, or is united with *rôt*, red, to intensify the redness (2068, *lichtez golt vil rôt*, or 400, *schellen von liehtem golde rôt*, cf. *bouc . . . licht unde schône was er von golde rôt*).

White, *wîz*: is used of flesh (*hant*, 274, 1011, 1358, 1701, cf. *vil wîze hant*, 661; *arme*, 451), of dress (compared to snow, *mit snêwîzen geren*, 555, 392, compared to *saben*, in *saben wîzer hemedede*, 632, 976), of sails (*wîzer dan der snê*, 508), of silk (*sîder wîz* also *der snê*, 362), of armor (*wîze brünne*, 79, 188, *halsperge wîze*, 1717). White, *blanc*: is used of cloth (*hemedede blanc*, 670), of horse and garment both (*von snê blanken varwe*, 399), of sweat (1882).

Loss of color, paleness, is denoted by *bleich*, generally opposed to red: *varwe* (155, 1665, 1734, etc.), just as the "*lichte varwe*," in 987, is "*des tôdes zeichen*."

Red, *rôt* (occurs most often of all colors): is used chiefly to describe gold, *golt vil rôt*, *golt daz rôte* (268, 854, 951, 999, 569, 687, 1784, 4795, 1427, 1554, 2130, 68, 92, 71, 1795), and *goldesrôt* characterizes garments, saddles, horse-trappings, or goblets (*von golde rôt*, 606). Red alone is the characteristic of the *bougen* (1322, 1634, 2204), or intensified by *vil* (1550), and with *all* the *rôt* is epithet of gold (*von alrôtem golde*, 435, in 1595 *ein zeichen rôt*); or, again, *rôt* betokens the blood color (1624, 1006, *bluotes rôt*), and in 2309 (*brünne rôt*, with gold or with blood, 428, 2309), more particularly *var nach bluote* (212) is blood-colored, the same as *bluotes varwe* (218), so *rôte bäre* (239 reddened with blood), *von bluote rôt* (1011, 1932); armor is bloody red, an *sîme rôtem* (*i. e.*

Veda: "Not only was the sky not called blue, but nothing was called blue, and it was impossible to call anything blue . . . No word for such an idea could have existed, because the idea of blue was early and late bound up with another idea." We pass over the fact that Geiger, in mentioning VIII 19, 31 (where the sparks according to his theory are called black), fails to mention that the adj. is here applied to fire and contents himself with the remark "in this place *nila* cannot mean bluish, but blackish" (s. 306), and concern ourselves with the theory alone. We have seen that in other literatures no great reliance can be placed on the occurrence of color words as indicating development or lack of development of color sense. But particularly is this true of the Rig Veda.

bloody) *helme* (191); so (2279) *von pluote rôt unde naz*, and (2088) *die blut varwen helde*. In 921 the blood is *bluomen rôt*, and *rôt* is the color of velvet (*samît rôt*, 705). Fire is thus characterized (*firver rôtên vanken*, 186, 2053, *fiwer rôter wind*, from the clash of swords, 2062, 2275). Fire-red is blood in 2072 (*brünne fiwer rôt*, from blood). Rose-red is the blush (*rôsen rôt*, 241) or the color of the face in general (282); the blush of joy, *freuden rôt* (1497), *vor vreuden rôt* (448), *vrotiden rôt* (770), or of shame (614), or of anger (465 in *zorne rôt*) is thus described; as, too, the redness of the lips (*rôsenvarwer munt*, 591). As mentioned above it is the antithesis of *bleich*, pale, as in 285, *er wart . . . vil dieke bleich unde rôt*; the alternation of each produces a mixed color (1666, *gemischet wart ir varwe, bleich unde rôt*). In 281 we have the very Vedic description: *Nu gie die minneclîche, also der morgenrôt tuot ûz den trûeben Wolken*.

Yellow: it is occasionally dubious whether red or yellow be meant when gold (golden) is introduced to express color. With *rôt* expressed, as is generally the case, gold is represented as red, otherwise "goldvarwe" and "guldin," or gold alone may betoken yellow, as in 434, 954 (though here *goldes zein* may be made of gold), or in 712, *die golt varwen zoume*; 376, *waz golt varwen gêren*; *goltvarwen schilde*, 376; or *guldin* in 570, *die guldînen scaemel*; 679, *ein guldîn vingerlîn*; so the sword-hilt, *gehilze*, 1784, and 956, *guldîne tülle* (though in the three last *guldin* may mean made of gold). Once only have we a genuine color word for yellow, the same word that occurs so often in *Beowulf*: *Die sach man valevahse, i. e. (women) with yellow hair (vahs)*. The passage (1783 and) 1784 (quoted above) gives us in short compass almost all the color adj. of the poem which betoken gleaming, red, yellow, and green: *ein vil liehtez wâfen, ûz des knopfe schein. Ein vil liechter jaspes, grüener danne ein gras. Sîn gehilze daz was guldîn, die scheide ein porte rôt*.

Green is mentioned very rarely. Once, in the passage just quoted, *grûen* designates the jasper, greener than grass, and the same comparison is found (404): *von edelm marmelsteine grüne alsam ein gras*; so, too, the jewels glance with grass-green light against (wider) the (yellow) gold (436), cf. 577, *lûhte gegen der wât*, and 799, where the color of the face surpasses the glance of gold. Instead of grass we find clover once employed to illustrate the color

It is in fact misleading when one tells us that green things are mentioned so often and yet not called green. The natural implication is that we have the green color left out in a mass of literature filled with *descriptions* of earth's products. So, for instance, Montagu Lubbock understands Geiger (v. in his recent article in the *Fortnightly Review*). But, we ask, what are the trees and fields called? How often in the Rig Veda does the poet allude to these objects of nature and in what connection do they appear? Is the character of the work such that the omission of green and blue has really the weight that Geiger lays upon it? It will be seen, I think, if we ask how often the Rig Veda writers took the trouble

of the green silk "von Zazamanc," as opposed to that of Arabia which was "wiz also der snê," whereas the other is "grüen alsam der klê." In all these cases green is used merely in this one set expression.

The adjective blue [blâo] does not occur although the heavens are frequently mentioned, journeys are taken on the water, etc., etc. In 894 the verb zerbliuwen which occurs in ptc. form zerblouen, has no reference to color, even if we admit the identity of "blue" and "blow."

Neither violet (purple) nor brown are mentioned. Black occurs a few times: pfelle (cf. 952) swarz alsam ein kol (365); clothes are said to be von rabenswarzer varwe (402), as is sabel (zobel, 1826). Harnaschvar is the black color of grime. The often mentioned moere (75, 570, etc.) are said to mean originally black horses (cf. Bartsch, note to 75) but in Nib. no trace of color is associated with the word. Mixed in color is grey, grâ, "ze kleidern grâ unde bunt" (59); so grîs (1734) especially of grey hair, mit einer grîsen varwe (gemischt war sîn hâr), and grîs means simply grey with age, den alt grîsen man (497); so grîse (old men) is opposed to die tumben (young) in 1798 (cf. 768 die tumben unt die wîsen). Variegated is expressed by bunt (59 and oft) or by gemâlet (1294). Color itself in Nib. is regarded as increasing, merte sich ir varwe (561); lighting up, erzunde sich (292); paling away, erbluete ir liehte varwe (240); or as simply glancing, ir varwe . . . diu lûhte ir ûz dem golde (1351). It may be bad, missevar (= pale, of men, 1590, and of ringe, 2218). In 1702 color seems to be considered as a covering (varwe, cf. Sk. varṇa, var): ein hulft von liehtem pfelle ob sîner varwe lac, the covering lay over the color (cf. 439). "Falsified color" is rouge (gevelschet frouwen varwe, 1654). Both schînen and liuhten are used absolutely, or with gegen (wider) to express contrast of color. (282) lûhte vil edel stein, (1761) garments, (cf. 1663, 570, and erlûhte, 806); as adverb lûterlich is used (283). Schînen and liuhte are united in 434, lûhte mit schîne (cf. 647, liechten schildes schîn, and 399, 2348, etc.). We find also the substantive meaning of these verbs expressed by schîn or glanz (passim).

Peculiar verbs of glance are blicken (of the sword-stroke, 2077), stieben (the blows fall so rapidly on the hero daz er stieben began, 2277 cf. 2278), so lougen (457, 2062, etc., cf. 1612). In 1620 we have prehen used with schînen of the moon, and in 1841 lohen of breastplate (with glanz). As an active verb appears beliuhten in 1702 (der tac . . . belûhte den schilt).

to speak of nature's beauties in grass and wood and meadow (*i. e.* where *green* would be used), that these objects are rarely referred to except in a most unpoetically practical manner, where not only green but almost every other epithet that enhances the idea is generally omitted. I consider this view as worthy of notice, for Geiger's remark in regard to the "green fields" is frequently quoted, and his general essay is I believe all that has been written on the subject from a Veda standpoint. A few statistics may, however, serve to show how comparatively little ornate mention is made of these natural products anyway, and, when alluded to, how scanty a description of any kind is added.

In the first place grass (*tr̥ṇa*) is mentioned only five times in the Rig Veda, and in not one of these cases is any epithet at all applied to it. Not only are the poets silent in regard to its color, but in the same way they are silent in regard to its growth, general appearance, luxuriance, etc. It is always in such pictureless expressions as "eat grass," "burn grass," "provide grass," "lie on the grass," "bring grass and water," the bare grass without epithet. So the plants and vegetables (*virudh* and *oṣadhī*) are, although occasionally provided with epithets, almost always regarded from a practical, utilitarian standpoint. They are full of sap (*payasvat*), sweet (*madhumat*), strengthening (*ūrjasvat*), various in kind (*viçvarūpa*, this *may* mean many-colored), they have a hundred different appearances (*çatavicaṣṣaṇa*). Only once is the aesthetic side touched upon, for they are *supippala*, provided with pretty (*su*) fruits, and even this is explained by B. R. as having *good* fruits, *i. e.* useful. *Babhru* (see above) is used substantively to denote certain plants. *Çāda* (a word of doubtful meaning, B. R. "grass," Grassmann "somagefäss") occurs only once and without epithet. Finally, *yava*, corn, grain (without descriptive epithet) gives us the word *yavasa* (*n.*), the field of grain or corn-meadow, and may be translated simply "the meadow." This word is used upwards of twenty times, but always alone by itself, and confined to use in such expressions as "rejoice as cows in the meadow," "grow fat in the meadow," "a wild beast in the meadow," "feed in the meadow," "return from the meadow," "like rain on the meadow." This is all, we are not told that the meadows are beautiful, or sunny, or shady, or pleasant, or soft, or wide, or sloping—surely then if we are not told that they are *green* it need not surprise us. Another word for field in general is *kṣetra* (the later *kedāra* is not found in Rig Veda), and here we find certain epithets attached: V 62, 7,

a field is wished for "fruitful and good" (tilvila, bhadra), again it is called pleasant (raṇva) X 33, 6: or distant (araṇa) VI 61, 14: but undesirable is the fruitless field (agavyūti) VI 47, 20. (II 31, 15, mahi kṣetram *puruṣcandram*, wide glancing, has reference not to earthly but to heavenly fields.) In all these we see that use and not beauty is in the singer's thought. The earth itself (bhūmi, kṣam, gmā pṛthivī, etc.) is called the immeasurable, the extended, the strength-giver, the wide, the great, the firm, etc., the four-cornered (caturbhr̥ṣṭi), and once as we have seen (cf. §3, pṛthivīm harivarpaśam) a doubtful color word is given it. For foliage we have parṇa (n.), literally feathers (later patra and dala do not occur) used once X 68, 10 "as trees robbed of their foliage" (once also as special tree). Often as the trees, vana, vanaspati, vanin, vṛkṣa, (taru and druma do not occur) are alluded to, we find no variety of poetical description, though vṛkṣakeṣa occurs as epithet of mountains (girayo vṛkṣakeṣāḥ), but once as soma plant vṛkṣa is termed red (aruṇa), and supalāṣa, well covered with foliage, also occurs. The boughs (vayā and ṣākhā) are spoken of as branching (dividing) and ripe, but not otherwise. They are noticed but sixteen times in the thousand hymns (and three of these allusions are in metaphor.)

We must then, I think, admit that there is another cause than that given by Geiger and Weise for the lack of certain color words. It is because those objects in nature such as woods and fields are not brought in to be embellished—are not meant to be described. It is merely that *they* may embellish an idea that they are introduced at all; they are subordinate objects to the greater purpose of the poet. For we are not reading rhapsodies over nature when we peruse the Rig Veda. The aim of the work is different—to praise the gods and increase in worldly goods, or rather, to praise the gods *in order thereby* to increase in wealth is the one aim that inspires the overwhelming majority of the hymns. Earthly objects are therefore chiefly introduced to point a song, to specify what good the singer demands in return for his hymn. Thus it happens that the objects of earth, corn, trees, fields, are, so to speak, merely hurried into the song and then drop out of it, while the poet proceeds to glorify the deity by extolling his might and beauty. And thus we come to the explanation of the second fact—the blue fails amid the descriptions of heaven. But it is not quite exact to say the description of heaven. The vault of heaven (divos) nākaḥ-, nākasya pṛsthā, is spoken of only about once in every forty

hymns, and then accompanied by no color word at all: Heaven's vault is not called blue, but it is also not called yellow or red, the only epithet given it that suggests color is in *citraçocis*, clear-shining, and *agr̥bhitaçocis*, of inconceivable brightness; beside these the only other epithets of any sort applied to it are wide (X 113, 4), lofty, mighty (VII 86, 1, and VII 99, 2). This firmament is not addressed as a deity, it is simply a locality, and is therefore merely introduced as an incident; he mounted in the vault of heaven, he stands therein, he upholds it, he adorned it with stars (I 68, 5) (cf. X 68 11), etc. The cosmology of the Hindus placed between this vault and the earth the real often-named three-fold sky—the div, *dyauḥ*. This heaven is, however, in itself color, "the glancing"; it is light. But the firmament (*nāka*) is not dark though it lies beyond the region of light. According to the development theory the blue vault should be dark, but in I 19, 6 we find *nākasya rocane*. We cannot, however, regard this as a mere confusion of firmament and realm of light, for these are carefully distinguished (cf. Zimmer *Altindisch. Lebens.* 358). One has to climb above *dyauḥ* to reach the divo *nāka* (A. V. 4, 14, 3) (cf. R. V. VI 8, 2, I 34, 8) which is supported like a pillar (IV 13, 5) and has a (rounded) back, *nākasya pr̥ṣṭham* (I 125, 5, cf. III 2, 12) or *nākasya sānu* (VIII 103, 2). *Dyauḥ*, *svar*, *vyoman*, *rajas* (*antarikṣam*), give the theatre for the color-display of the clouds and storms. If we understand the meteorological notions of the Veda we shall not be able to say that the blue heaven is often described but never called blue. The blue heaven, *i. e.* firmament, is not "*often described*," it is scarcely *described* at all, and stands above the realm of which the Vedic poets give us their glowing accounts, outside the stage on which the wonders of heaven are enacted. That which is described is the lower heaven, not the blue firmament—where, had we the same views in regard to the heavens, we also should find no occasion to speak of blue. The mass of color description, as of all other description, falls where the whole interest of the poets lies, upon the active powers of the atmosphere and the lower sky. These were the subject of their hymns, and to describe these powers was to glorify and to worship them. It was not the blue firmament with which the Vedic singers were impressed, their deities do not live there, and therefore, as the whole object of the hymns is bound up in the gods, it is easy to see why this firmament was so seldom alluded to as compared to the innumerable descriptions of the (lower, not blue but shining) atmospheric sky. Here is the real

abode of their divinities. It is, therefore, not strange that, being so seldom alluded to, *nāka* has no real epithet of color given it, while we find the colors which appertain to the lower heaven, the home of the gods, are often employed by the poets. This lower heaven is not only the home of the gods, it is a god itself, *dyos pitā*, whereas the *nāka*, firmament which is blue, is not conceived as divinity. The gods whose praises the poet sings are red and yellow, white or dark, the colors of sunrise and lightning, of the morning clouds and the gleam of the sun. The Vedic singer occupies himself with the foreground, he was too busy with the prominent features and characters of the scene to care much for the background, of his picture. Beautiful things *per se* he did not celebrate, for beauty was an incident of his song, not the theme. So, too, on earth, beauty of color did not often appeal to the unaesthetic mind of the Vedic poet. And then, for instance, we find when the lotus is mentioned, it is more as something worthy of notice for its beauty of smell than for its beautiful color, and amid all the luxuriant vegetation of India we have only some half dozen plants mentioned by name (v. Zimmer, *Altind. Leb.* s. 71). The singer gave them no adjectives, for only to mention them was, so to speak, an adjective to his train of thought, and hence all his adjectives of description are meagre, except where they apply to the persons of the gods, or clouds, or the particular object longed for by the poet.¹

There is a second point that is involved in the quotations given above from Geiger and Weise. It is in regard to the lack of clearness, the inexactness of many Vedic color terms. From this, however, we cannot draw the conclusion that the sense of color was inexact, for we could scarcely affirm this if it were proved to exist in the language used. There is, however, no literature where color words are applied to objects which are so constantly indefinite in point of color. The gods, the natural forces of the atmosphere, the clouds, the steeds of the gods, horses, wolves, cows—these are the objects of which color is chiefly predicated. The application of color words is made in most cases where we ourselves would be

¹ Even as late as the second century B. C. we find an analysis of light that gives only three colors and excludes green: *Anugīta*, *Mbh.* XIII 50, 46 (cf. XII 184, 35) *jyotiṣaṣca guno rūpam, rūpaṁ ca bahudhā smrtam* (the quality of light is color which is manifold), and these colors are given as (black, white) red, yellow and blue. Yet in the *Rig Veda* (X 55, 3) light is declared to consist of thirty-four different parts: *catuṣtrimṇitā purudhā vicaṣṭe sarūpeṇa jyotiṣā vivratena*.

at a loss to say what exact term might best describe the object. If we found that a word which means yellow alone is applied to something which is and can be only red or green, then we might admit a confusion of epithets and of idea. But such cases do not occur. It is, again, impossible to say at what period the idea of the root that underlies the color word has passed into abeyance and left a fixed color term. Green and yellow may both at the same time be denoted by the burn-color *hari* with the subsidiary notion of fiery or shining. The conception is not indefinite because the appearance is described by a general term. "Blue," to our minds, embraces many colors, but the one name covers all shades. We cannot say that yellow preceded green in the Teutonic languages though *gêlu* and *gruoni* come together from this same root *ghar*. Nor can we say at what time the "glare" (*ghar*) in *gêlu* ceased to be prominent.

We conclude, then, by affirming: 1st, Non-mention of the colors green and blue is not proved for the Rig Veda literature; 2d, That the sky is not called blue nor the fields green rests on reasons which have nothing to do with the development of the retina; 3d, We cannot admit that either color words or color perception of those who composed the Rig Veda were inexact or imperfect, for the cause of the apparently inexact employment of words lies in the variable and uncertain color of the objects to which the color terms are applied.

The theory of the development of the color sense rests, from a literary point of view, in great part on negative data. From the standpoint of physiology it has no support. Lubbock has shown that savages have perfect sense of color, Wallace has affirmed that non-mention of color is in general no proof that it was not appreciated. We have endeavored to show that this is true at all times and to explain the reasons for this fact in the Rig Veda.

If the Vedic literature fail to support the theory, one of the strongest of these negative proofs is withdrawn, and even the absence of certain colors in Homer may be deemed perhaps of less significance than has been claimed when we consider that the *Nibelungenlied* exhibits, twenty centuries later, the same absence of corresponding colors, and a like ratio in the greater use of terms denoting red and yellow.

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IV.—THE HARBORS OF ANCIENT ATHENS.

I.

It is not necessary to enumerate here the various positions which have been assigned, during the last fifty years, to the different harbors of ancient Athens. It is sufficient to say that, in the early part of the century, the easternmost natural haven (Phanari) of the Peiraic peninsula was identified as the port of Phaleron. Later, the investigations of several distinguished German scholars, especially of Ulrichs and Curtius, led them to place Phaleron at the eastern extremity of the bay of the same name, near the spot now known as Haghios Georgios. This theory is now generally accepted; and the port of Phanari is known as Mounychia, and the southeastern harbor of the peninsula (Pasha-Limani)¹ as Zea. There has been no dispute about the identity of the main harbor of the Peiraieus, which has now resumed its classic name; but the subdivision of this harbor, attempted in accordance with ancient texts, is a matter of much uncertainty.

II.—PHALERON.

"In the maritime towns of antiquity, the seaport was frequently separate from the city proper, and at some distance from it. In early times there were very few artificial harbors, surrounded by quays, divided into basins, and protected by jetties, breakwaters, and fortifications, as in many modern seaports. . . . The ancients chose as a rule, for their ports, a small natural gulf or inlet, sheltered from the fury of the open sea, and provided with a gently inclined beach, upon which their vessels could be drawn up."² An examination of the conformation of the Athenian coast renders it doubtful whether these conditions are fulfilled in the site ascribed to Phaleron at Haghios Georgios. This site is described as follows by M. Émile Burnouf, ex-Director of the French School at Athens: "It would be impossible to establish a harbor near *Τρεῖς Πύργοι*, except

¹ Stratiotiki—(Leake).

² Charles Lenthéric—*La Provence Maritime Ancienne et Moderne*. Paris, 1880, p. 209.

by the construction of breakwaters of great extent; and even such breakwaters would afford incomplete protection against winds from the west and south. There remains no vestige of a breakwater, or of engineering works of any kind; while the cape at the extremity of the bay would afford but scant shelter to a single fishing boat."¹

In the harbor of Phanari, on the other hand, at the western end of the Phaleric bay, we have a beautiful little natural basin, almost circular, and about one-fifth of a mile in diameter. This basin has a single narrow entrance, contracted still further by ancient Hellenic breakwaters, which remain almost perfect. The harbor is sheltered on three sides from the wind, and it possesses the sandy beach which was sought by the ancients for their ports. At the water's edge are remains of numerous shipways and houses, both cut in the rock and constructed of blocks of hewn stone. Even taking into consideration that, before the Persian war, the naval power of Athens was comparatively inconsiderable, and that the ships were small and drawn easily up on the shore, it would seem reasonable that so excellent a natural harbor should be chosen in preference to the open coast near Haghios Georgios, exposed to storms and difficult to defend against a hostile surprise. It must be conceded that Haghios Georgios is considerably nearer Athens than Phanari; but we shall see below that the distance of the latter place from the city accords better than that of the former with the length of the Phaleric Long Wall as given by Thucydides.²

III.

I will not repeat the arguments of Ulrichs and Curtius in favor of the identification of Haghios Georgios with the ancient Phaleron. These arguments are reviewed and summed up very clearly in Curt von Wachsmuth's *Die Stadt Athen im Alterthum*,³ a work of much erudition, in which is brought together a mass of ancient information with reference to each question discussed. I will now consider some points in the scanty ancient testimony that remains to us regarding the topography of the Athenian seaports, which seem to throw doubt upon the solution generally accepted.

The Long Walls to Phaleron and the Peiraieus were begun in 459 B. C.⁴ If Phaleron was at Haghios Georgios, nearly two miles of

¹ La Ville et l'Acropole d'Athènes. Paris, 1877, p. 136.

² Book II, chapt. 13.

³ Leipzig, 1874, p. 306 *et seq.*

⁴ Thucydides, I 107.

shore along a plain, in some places indeed marshy, but in general smooth and accessible, lay exposed to a hostile attack from the sea between the Long Walls,¹ of which the usefulness was thus seriously impaired. It is true that Athens had, at the time of the construction of the Long Walls, almost reached the zenith of her power both by sea and by land. However, it would not be safe to assume that she could consider herself secure against even a raid from the sea. An old rival and bitter enemy—Aigina, the "eyesore of the Peiraieus"—lay only a few miles distant across the Saronic gulf, her temple of Athena in plain sight from Athens three miles inland. Aigina was indeed much crippled, but she still retained some semblance of independence.² It was not until 455,³ four years after the Long Walls were begun, that she was forced to surrender her last ships to Athens. Many of the allies of Athens had considerable naval power until long after this. It was thirty years later that Lesbos revolted and was crushed; and the presiding city of the confederacy had before her the example of the revolt of Thasos,⁴ to warn her against over-confidence in the fidelity of her allies. Yet the Outer and the Phaleric Long Walls were begun some eighteen years after the Peiraieus had become her principal seaport; and there was therefore no urgent necessity for seeking to assure the connection between the metropolis and Phaleron; while the attempt to do so in the way that Thucydides tells us it was done, always granting that Phaleron was at Haghios Georgios, would have introduced an obvious element of weakness into the whole system of fortification.

The following is the main passage of Thucydides which bears upon the defences of Athens and her ports at the beginning of the Peloponnesian war: "The length of the Phaleric Long Wall was thirty-five stadia, to the fortifications of the city. The circuit of that portion of the fortifications of the city which was kept under guard was forty-three stadia, in addition to the portion left unguarded, between the [outer] Long Wall and the Phaleric Wall. The length of the Long Walls to the Peiraieus was forty stadia; and

¹ Cf. Wachsmuth—*Die Stadt Athen im Alterthum*, p. 558.

² Cf. G. von Alten, in the *Erläuternder Text of Curtius and Kaupert's Karten von Attika*, Berlin, 1881. Heft I, p. 10, "Die Nähe des feindlichen Aegina, von welchem man jeder Stunde eines Ueberfalls gewärtig sein konnte, allein machte eine solche Sicherung [the fortification of the seaports] nöthig."

³ George W. Cox—*The Athenian Empire* (Epoch series). London, 1876, p. 31.

⁴ 465-463 B. C.

of these the outer one was guarded. The whole circuit of the Peiraieus, including Mounychia, was sixty stadia, of which the half was guarded."¹

Even if we allow that the entire land side of the Peiraic peninsula, including the circuit of the promontory of Eëtioneia, was held under guard without reference to the Long Walls to Athens—a condition which is highly improbable—we must fill out from the sea-walls of the peninsula a large part of Thucydides' thirty stadia. The inference is easy, that at the beginning of the war, although an attack from the sea may not have been much dreaded, still it was thought necessary to take proper precautions.² Yet, according to the accepted theory concerning the harbors, we must believe that a long stretch of sandy beach was left unprotected between the Peiraic peninsula and Phaleron. We know that the middle Long Wall was not guarded, and that there was a portion of the city wall, "between the Long Wall and the Phaleric Wall," which was not occupied by the garrison. We must imagine, therefore, about three square miles of land, in great part fertile, of which the value to Athens would have been inestimable, during the Peloponnesian invasions, exposed to a bold nocturnal raid at the hands of such enemies as the Lacedaemonians. Worse than this, the middle Long Wall might have been seized, or even an entrance to the city have been gained by surprise over the undefended section of the fortifications.

An argument perhaps still more forcible against the existence of this great intervening space between Phaleron and the Peiraieus is found in Thucydides' description of the crowded state of the city at the time of the first Peloponnesian invasion. Thucydides' words are as follows: "When the country people arrived in Athens, some few of them found lodgings in the houses of friends or relatives; but the great majority established themselves in the open spaces of the city, and in all the sacred enclosures of gods and heroes, except the Akropolis and the Eleusinion, and some other places which were kept resolutely closed."³ Even the spot beneath the Akropolis, called the Pelasgikon, was thus occupied, in spite of curses which had been proclaimed against its settlement,

¹ Thucydides, II 13, 7.

² Later, the Athenians became more careless in their watch toward the sea, as we know by the amusing incident of the planned Spartan attack upon the Peiraieus, described by Thucydides, Book II, 93.

³ Καὶ εἰ τι ἄλλο βεβαίως κληστὸν ἦν.

and of the words of the Pythic oracle, 'It is better that the Pelasgikon should remain fallow.' I think, for my part, that this oracle meant the opposite of its popular interpretation, and that it was not on account of the impiety of inhabiting the Pelasgikon that disasters befell the city, but on account of the war that it became necessary to occupy the Pelasgikon. The oracle was doubtless rendered with knowledge that this place would never be given over to dwellings in time of prosperity, although it does not state this plainly. Many of the newcomers constructed quarters for themselves in the towers of the city walls, and wherever else any one was able to find accommodation; for there was not room enough in the city for so large a number as were crowded into it. Finally, they took possession of [the space between] the Long Walls, and of the greater part of the Peiraieus."¹

If three square miles of ground had been available, between the Long Walls and the Phaleric Wall, it would hardly have been possible for the want of room to be so pressing. That this space could not have been left unoccupied for fear of attack is shown by the fact already often alluded to, that the middle Long Wall and a certain portion of the city wall were left unguarded. The Phaleric deme, as Strabo tells us, began at the boundary of the Peiraic, and extended along the adjacent shore.² Yet no mention is found of the occupation by the refugees of the territory of this deme, which would have been, in great part, within the walls.

Another argument against the identification of Haghios Georgios with Phaleron is furnished by the very nearness of this point to Athens. The intervening distance is only about thirty Attic stadia;³ while that to the city from the little promontory on the northern side of Phanari agrees much more closely with the length of thirty-five stadia assigned by Thucydides to the Phaleric Wall. To explain away this and other difficulties in the measurements given by Thucydides, Curtius supposes that the historian used a stadion measure smaller than the usual Attic; and other scholars suppose inexactitude on the part of Thucydides, or excessive windings of the walls. The latter supposition is very unlikely in the case of fortifications of the nature of the Long Walls, upon such ground

¹ Thucydides, II 17; cf. II 52.

² Strabo, 398, 21: Μετὰ δὲ τὸν Πειραιᾶ Φαληρεῖς δῆμος ἐν τῇ ἐφεξῆς παραλίᾳ . . .

³ Wachsmuth, p. 330.

as this part of the Attic plain, and the first two seem disproved by independent evidence.¹

IV.—MOUNYCHIA.

Mounychia, the Akropolis² of the Peiraieus, is identified by the German scholars with the steep hill above the harbor of Phanari. There seem to be weighty reasons for doubting the correctness of this assumption. The smaller peninsula, which forms the southern extremity of the Peiraic peninsula, is, there can be no doubt, the Ἀκτὴ of the ancients;³ famed for its quarries of building stone, abundant remains of which still exist. In Herodotos, VIII 77, we have preserved the following words of an oracle:⁴ "When they shall make a bridge with their ships between the sacred headland (ἀκτὴν) of Artemis of the golden sword and sea-girt Kynosoura, etc." But Pausanias tells us that "the Athenians have still another harbor, that at Mounychia [where there is] a temple of the Mounychian Artemis."⁵ As no other Artemis is mentioned in connection with the seaports, except the Thracian Bendis, whose sanctuary was in the neighborhood of that of Artemis Mounychia,⁶ this is enough to establish a presumption that Ἀκτὴ and Mounychia were merely different names for the same locality. This presumption is strengthened by Herodotos' account of the disposition of the Persian fleet before the battle of Salamis: "Those who were stationed near Keos and Kynosoura brought up their ships and

¹ See Wachsmuth, pp. 330 and 334, etc., for this evidence. Milchhoefer says, in the explanatory text of the *Karten von Attika*, 1881, Heft I, p. 24, §6, that the Phaleric bay extended probably, in ancient times, much further inland towards the city; and that even now it is impossible to walk dryshod in a straight line from Athens to the site at *Τρεῖς Ἱεῖργοι* (Haghios Georgios). The sea at the eastern side of the bay is shallow and even obstructed by reefs, so as to be ill-fitted for navigation. Towards the western side of the bay, remains of ancient houses exist; these must have been in the deme of Phaleron. Milchhoefer (*loc. cit.*) seems inclined to the opinion that the port of Phaleron occupied a position now wholly inland, upon the supposed ancient inland extremity of the Phaleric bay, and not far distant from the southern Long Wall. It is probable, however, that this inlet was already, in the earliest historic times, extremely shallow.

² Wachsmuth, p. 307.

³ See Wachsmuth, p. 316 *et seq.*, for proof of this.

⁴ Wachsmuth, p. 317, and note 6.

⁵ Pausanias, I 1, 4.

⁶ Xenophon—*Hellenica*, II 4, 11. Cf. Plato—*Πολιτεία*, a¹, I.

blockaded the whole strait as far as Mounychia. This movement was made in order to cut off the retreat of the Hellenes, . . ."¹

A glance at the map shows that it is unlikely that the blockading line was extended further than the extremity of the Peiraic peninsula. If the line of ships had been carried beyond Ἀκτὴ to the Phanari harbor, a large number of ships would have been in such a position as to be unable to render any service—the whole Peiraic headland being necessarily between these ships and the scene of battle.

Under the word Μουνυχίων² we find in Photios the following explanation: "Ἡρώς τινος καθιερώσαντος αὐτὴν (Μουνυχίαν Ἀρτέμιδα) ἐπὶ τῷ τοῦ Πειραιῶς ἀκρωτηρίῳ."³ Wachsmuth quotes this sentence as evidence that Mounychia was the Akropolis of the Peiraieus. The word ἀκρωτηρίῳ describes excellently the peninsula of Ἀκτὴ, which, too, was peculiarly fitted to be the Akropolis; not only by nature, since it is connected with the main peninsula merely by a narrow isthmus, and since it commands completely the entrances both to the main Peiraieus harbor and to the harbor of Pasha-Limani, but also by art;⁴ for considerable remains of its ancient fortifications survive. The hill above Phanari, called Mounychia by the Germans, is higher and steeper; but before the invention of gunpowder, Ἀκτὴ was plainly a more advantageous site for the Akropolis. Strabo's description of Mounychia runs as follows: Λόφος δ' ἐστὶν ἡ Μουνυχία, χερρονησιάζων καὶ κοῖλος καὶ ὑπόνομος⁵ πολὺ μέρος φύσει τε καὶ ἐπίτηδες ὥστ' οἰκήσεις δέχεσθαι, στομίῳ δὲ μικρῷ⁶ τὴν εἴσοδον ἔχων· ὑποπίπτουσι δ' αὐτῷ λιμένες τρεῖς. Τὸ μὲν οὖν παλαιὸν ἐτετείχιστο καὶ συνέκιστο ἡ Μουνυχία παραπλησίως ὥσπερ ἡ τῶν Ῥοδίων πόλις, προσειληφύια τῷ περιβόλῳ τὸν τε Πειραιᾶ καὶ τοὺς λιμένας πλήρεις νεωρίων, ἐν οἷς καὶ ἡ ὀπλοθήκη, Φίλωνος ἔργον· ἄξιόν τε ἦν ναύσταθμον ταῖς τετρακοσίαις ναυσίν, ὧν οὐκ ἐλάττους ἔστελλον Ἀθηναῖοι.

¹ Herodotos, VIII 76.

² Wachsmuth, p. 307, note 6.

³ Cf. the use of the word ἀκρωτηρίον with reference to this very Ἀκτὴ, or to a part of it, in Plutarch, Themistokles, frg. 1, of Müller: Frg. Hist. Graec. II, p. 353. (Wachsmuth, p. 320, note 4.)

⁴ Cf. Wachsmuth, p. 315, note 4. Diodoros, XX 45, and XIV 33.

⁵ Some prominent scholars consider that the expression κοῖλος καὶ ὑπόνομος applies with peculiar aptness to the hill nearest the mainland, on account of the remarkable passage hewn from the rock in very ancient times, and containing a flight of steps which descends to a great depth in the southwest slope of the hill. This explanation seems, however, rather far-fetched. This underground passage has not yet been thoroughly investigated.

⁶ Στομίῳ δὲ μικρῷ applies very well to the narrow peninsula by which Ἀκτὴ is joined to the rest of the Peiraic peninsula.

τῷ δὲ τείχει τούτῳ συνῆπτε τὰ καθειλκυσμένα ἐκ τοῦ ἄστεος σκέλη· ταῦτα δ' ἦν μακρὰ τείχη, τετταράκοντα σταδίων τὸ μῆκος, συνάπτοντα τὸ ἄστυ τῷ Πειραιεῖ . . .¹

The word *χερρονησιάζων*—forming a peninsula—seems to adapt itself admirably to Ἀκτὴ, while it cannot without a stretch of meaning be applied to the hill above Phanari. Ἀκτὴ, again, and the neck of land by which it is connected with the rest of the peninsula, are much better “adapted for dwellings,” and for the wide streets and symmetrical plan of Hippodamos—resembling those of Rhodes in beauty²—than the steep, rough slopes of the Phanari hill. The rest of the description appears to suit equally well either site.

Wachsmuth mentions³ the remains of a Doric temple found upon the shore of the Pasha-Limani by Colonel Leake, and says that “Leake attributed these ruins incorrectly to the temple of Artemis Mounychia.” He gives, however, no reason why they should not belong to the temple in question as well as to any other. Again, Wachsmuth thinks⁴ that only one theatre can have existed, in ancient times, in the seaport city. As considerable remains of a theatre survive upon the northwestern slope of the Phanari hill, and as Thucydides mentions τὸ πρὸς τῇ Μουνυχίᾳ Διονυσιακὸν θέατρον,⁵ he argues that the Phanari hill must be Mounychia. This argument is upset by the discovery in 1880 of another theatre at the northeastern extremity of Ἀκτὴ,⁶ close to the bay of Zea (Pasha-Limani), which it overlooks. If, therefore, Pasha-Limani is the ancient haven of Mounychia, we have in this new theatre τὸ πρὸς τῇ Μουνυχίᾳ θέατρον.⁷

¹ Strabo, IX 395, 15. Ed. Didot, 1853, p. 339. ² Wachsmuth, p. 319.

³ Wachsmuth, p. 328.

⁴ Wachsmuth, p. 320, note 3.

⁵ Wachsmuth, p. 320, note 2. Thucydides, VIII 93, 1. Cf. Lysias, XIII 32 and 35.

⁶ See Karten von Attika, mit erläuterndem Text, herausgegeben von E. Curtius und J. A. Kaupert. Berlin, 1881. Heft I, Bl. II.

⁷ Mr. Dragatses, in his article on Τὰ θέατρα τοῦ Πειραιῶς καὶ ὁ Κωφὸς λιμὴν, published in the *Παρνασσός* for 1882, p. 257 *et seq.*, gives satisfactory evidence that both theatres existed before the Peloponnesian war. He proceeds with an attempt to show from a study of Xenophon's account of the campaign of Pausanias against Thrasyboulos, that the Κωφὸς λιμὴν was not, as is usually accepted, either the inlet west of Eëtioneia or the marshy bay, now in great part filled up, at the northern extremity of the Peiraic harbor; but that it was the first of the subdivisions of the main harbor near its entrance. Even in connection with the usual theory of Peiraic topography, this part of M. Dragatses' essay can hardly be considered successful; while if Thrasyboulos' headquarters were on Ἀκτὴ, the Spartan commander's scouting expedition towards Eëtioneia would explain itself.

V.—THE PEIRAIEUS.

We read in Pausanias that "before Themistokles came into office . . . the Peiraieus was not the port of Athens, but Phaleron, where the sea is [comparatively] very near the city . . . But when Themistokles became prominent in the government, seeing that the Peiraieus was better adapted to the needs of navigation than Phaleron, and that it had three havens while Phaleron had but one, he took the necessary steps to create this seaport for the Athenians. And down to my own time, ship-houses have existed there; and the tomb of Themistokles is situated near the largest haven . . .

"The Athenians have still another harbor—that at Mounychia, where is the temple of Artemis Mounychia—besides the port of Phaleron, which I have mentioned already. Near the Phaleric harbor stand the temples of Demeter and of Athena of Skiras, beyond which is that of Zeus. Here, too, are the altars of the so-called Unknown Gods, etc.

" . . . Twenty stadia distant [from Phaleron] is the promontory of Kolias,¹ upon which the current cast up the wreckage after the destruction of the fleet of the Medes [at Salamis] . . ."²

"Ἐχει δὲ ὁ Πειραιεὺς λιμένας τρεῖς, πάντας κλειστούς· εἰς μὲν ἔστιν ὁ Κανθάρου λιμὴν καλούμενος, ἐν ᾧ τὰ νεώρια ἐξήκοντα, εἴτα [τὸ] Ἀφροδίσιον, εἴτα κύκλῳ τοῦ λιμένος στοαὶ πέντε."³

Ζέα . . . εἰς τῶν ἐν Πειραιεὶ λιμένων.⁴

Graser is of opinion⁵ that by "the three harbors of the Peiraieus" are meant the three divisions of the main harbor formed by two projections of its shore-line. He thinks that these three havens were described as *κλειστούς*, because the fortifications at the entrance defended at once all the inner subdivisions of the harbor. This opinion is shared by Colonel Leake and by M. Burnouf, among other scholars of high standing. The adjective *κλειστούς* could refer equally well to the fact that these inner harbors were protected—"closed"—from the violence of the sea.

¹ Pausanias, I 1, 5. This distance corresponds very closely with that from Phanari to the promontory at the eastern extremity of the Phaleric bay.

² Pausanias, I 1, 2, 4, 5.

³ Frg. 4 in Müller's Frg. Hist. Graec. IV, p. 450. (Wachsmuth, p. 310.)

⁴ Hesychios, at the word Ζέα. (Wachsmuth, p. 307, note 5.) For other authorities mentioning the three harbors of the Peiraieus, see Wachsmuth, Part II, pp. 306-28 *passim*.

⁵ Wachsmuth, p. 311.

The most important point in the passage from Pausanias is that, after speaking of Phaleron and the Peiraieus, with its three harbors, he mentions Mounychia as *another* harbor, implying that it was not one of the three havens of the Peiraieus proper. This militates against the modern theory that the three havens in question are the Peiraieus, Pasha-Limani, and Phanari, and that the two last are the old Zea and Mounychia. We know that Mounychia was on the Peiraic peninsula; if, then, its harbor was not one of the *λιμένας τρεῖς αὐτοφυνεῖς*,¹ the three havens in question must have been subdivisions of the main harbor.

VI.

From all that has preceded I venture to infer that the topographical arrangement of the chief harbors of Athens set forth last by M. Burnouf,² but not defended in detail by him, and agreeing in the main with that of Colonel Leake, is not only a possible, but even the probable arrangement. According to this theory the small peninsula at the extremity of the Peiraic peninsula is Mounychia or Ἀκτὴ; and the port beneath it to the northeast is ὁ ἐπὶ Μουνυχίᾳ λιμὴν. Phanari is the ancient Phaleron, and the hill above it is the Akropolis of Phaleron.

It still remains to settle the relative positions of the three bays of the main Peiraieus harbor—Zea, Aphrodision, and Kantharos. Different students have proposed in turn every arrangement of the names rendered possible by the existing number of bays; but no one of these arrangements seems based upon conclusive evidence. The chief naval establishment was on the harbor of Zea; we have therefore some reason to identify as Zea the largest of the three interior bays—the first on the right hand side upon entering the harbor. This position, commanding the narrow entrance and protected itself by the Akropolis of Ἀκτὴ, would have been especially favorable for the naval station; and the opinion that it was here is supported by the discovery near the modern Custom House, which stands on the point between this bay and the Πορθμεῖα or commercial port, of the important naval inscriptions first published by Boeckh. In these inscriptions reference is frequently made to "the Arsenal"

¹ Thucydides, I 93, 3. (Wachsmuth, p. 307, note 2.)

² Émile Burnouf—*La Ville et l'Acropole d'Athènes*. Paris, 1877. Plate XI, and p. 136 *et seq.*

³ See A. N. Meletopoulos—*Ἀνέκδοτος Ἐπιγραφή. ἐν Ἀθήναις*, 1882, p. 6, for quotations from the inscriptions.

in such terms as to leave little doubt that the arsenal in question was the famous Arsenal of Philon, which, as appears from the long inscription relating to it found last year near the Pasha-Limani (Mounychia)—as I believe, at some distance from its original position—stood “in Zea.” I think it therefore probable that this first bay is the ancient Zea, and that the great arsenal stood near it, perhaps, as suggested by Milchhoefer,¹ on the ridge between it and Mounychia, which was the second in importance of the old Athenian naval stations. It may be remarked that these positions for the naval stations and for the Akropolis would have been especially convenient for the transportation to the Akropolis and to the arsenal of the spars and rigging, etc., of which there is frequent mention in the naval inscriptions.

VII.—THE LONG WALLS.²

I have touched already upon the question of the length of the Long Walls to Phaleron and to the Peiraeus. I will give one other passage which, with that quoted already from Thucydides,³ establishes clearly that there were three Long Walls—two from Athens to the Peiraeus, and one to Phaleron: “Antiphon [says] to Nikokles that there were three walls in Attika, as Aristophanes tells us in the *Τριφάλης*—the Northern, the Southern, and the Phaleric Walls. The wall which ran between the other two was called the Southern Wall; it is mentioned by Plato, also, in his *Gorgias*.”⁴

In connection with this τὸ διὰ μέσον τεῖχος, we meet with a difficulty. The Scholiast on Plato's *Gorgias* tells us that: διὰ μέσον τεῖχος λέγει ὁ καὶ ἄχρι νῦν ἔστιν ἐν Ἑλλάδι. Ἐν τῇ Μουνυχίᾳ γὰρ ἐποίησεν καὶ τὸ μέσον τεῖχος, τὸ μὲν βάλλον ἐπὶ τὸν Πειραιᾶ, τὸ δὲ ἐπὶ Φάληρα.⁵

A possible explanation suggests itself from the topography of the ground, *i. e.* that the middle Long Wall was carried along the

¹ Cf. Karten von Attika, 1881, Blatt IIa, and explanatory text, p. 48. Drums of Peiraic limestone and a Doric capital of Pentelic marble have been found upon this site. The dimensions of the drums correspond very well with those given in the new inscription for those of the Arsenal; the capital is a few inches higher than it should be, but possibly the specifications of the contract as to measurements were not adhered to rigidly.—See American Journal of Philology, No. 11, October 1882, p. 317 *et seq.*

² See Wachsmuth, Part II, pp. 328–36.

³ Thucydides, II 13, 7.

⁴ Harpokrates (Suidas), at the words διὰ μέσον τεῖχος. (Wachsmuth, p. 328, note 2.)

⁵ Scholiast upon Plato's *Gorgias*, p. 304, Herm. (Wachsmuth, p. 328, note 2.)

crest of the steep hill above Phaleron, and down to the little point at the northern side of the entrance to the port of Mounychia, forming thus a dividing wall between Phaleron and the rest of the Peiraic peninsula.¹ This course would give to the Middle Wall approximately the length of forty stadia assigned to it by Thucydides, while other courses suggested heretofore make it fall short of this measurement. To arrive at definite results, and to settle, perhaps, this whole question of the harbors and of the Long Walls, it will be necessary to institute a thorough investigation on the spot.

The construction of the Middle Long Wall by Perikles, although the Phaleric and the Peiraic Long Walls existed already so near together, can be accounted for as a measure of extra precaution, to ensure communication with the sea if one or the other of the ports should chance to fall into the hands of an enemy, or one of the exterior walls to be carried by storm.

The German scholars do not claim to have found any vestige of a Long Wall between the shore near Haghios Georgios and Athens. They mention only some scanty ancient remains close to the sea.² These may well mark the site of an ancient settlement; my contention is merely that, for the reasons enumerated, this settlement, if it ever existed, cannot have been the port of Phaleron—the earliest seaport of Athens of which we have historic record. Burnouf, on the other hand, says: "The line given by the German scholars for a Long Wall from the cape near Treis Pyrgoi to Athens is entirely imaginary. In the whole intervening space there exists no vestige or trace of such a wall."³

THOMAS W. LUDLOW.

¹ An ancient boundary monument of a public space before a gate was found in its original position on November 27, 1882, on the southern side of the hill in question, just within the exterior fortifications. I have no map sufficiently detailed to show its exact position; but from the description, the monument may very possibly refer to a fortification wall between the Peiraieus and the eastern haven. The inscription, which is prior to the IVth century, is as follows:

(Γ)ΡΟΓΥΛ
ΟΔΕΜΟΣ(:)
ΟΗΟΡΟΣ

(π)ροπύλ
ου δημοσ(ι)
ου ἄρος.

Παρνασσός, Nov. 30-12, 1882, p. 862.)

² Wachsmuth, p. 330.

³ Work cited, p. 137.

V.—THE DYING ALEXANDER OF THE UFFIZI
GALLERY AND THE GIGANTOMACHIA
OF PERGAMUM.

No. 318, of the sculptures in the Uffizi collection, has long been known as the Dying Alexander. This name has been retained for want of a better, archaeologists having come to no agreement concerning it further than a general recognition of the truth of Otfried Mueller's remark (Ancient Art and its Remains, § 129, Note 4): "The head of the Dying Alexander at Florence is an archaeological enigma." The work represents the head of a young man whose beardless face is turned to the right and upward. The agonized tension of the eyebrow muscles and the open lips conspire with this turn of the countenance to express deep physical or mental suffering; akin to that of the Laocoön, it is represented by the same means. Long and wavy hair, rising from the forehead and falling, manelike, down either side of the face, serves as a frame to this picture of pain. The work has undergone considerable injuries and has been subjected to much restoration; according to H. Meyer, a large portion of the hair on the back of the head and of the curls about the face is new, also most of the nose, and the breast and shoulders with part of the neck.

As the pedestal has engraved upon it the name ALESSANDRO, the identification with Alexander the Great is probably as old as the restoration. It is not without interest to trace it to the complex misapprehension on which it rests. Plutarch, Alex. M. 4, writes as follows: *Τὴν μὲν οὖν ἰδέαν τοῦ σώματος οἱ Λυσίππειοι μάλιστα τῶν ἀνδριάντων ἐμφαίνουσιν, ὑφ' οὗ μόνου καὶ αὐτὸς ἤξιον πλάττεσθαι. καὶ γὰρ ἂ μάλιστα πολλοὶ τῶν διαδόχων ὕστερον καὶ τῶν φίλων ἀπεμιμούντο, τὴν τ' ἀνάτασιν τοῦ αὐχένος εἰς εὐώνυμον ἡσυχῇ κεκλιμένον, καὶ τὴν ὑγρότητα τῶν ὀμμάτων, διατετήρηκεν ἀκριβῶς ὁ τεχνίτης.* Another passage that may very probably have had to do with the naming of the bust is Plutarch de Alex. M. *virtute aut fortuna* II, 2: *Λυσίππου δὲ τὸ πρῶτον Ἀλέξανδρον πλάσαντος ἄνω βλέποντα τῷ προσώπῳ πρὸς τὸν οὐρανόν, ὥσπερ αὐτὸς εἰώθει βλέπειν Ἀλέξανδρος, ἡσυχῇ παρεγκλίνων τὸν τράχηλον, ἐπέγραψέ τις οὐκ ἀπιθάνως·*

*αὐθασσοῦντι δ' ὅμοιον ὁ χάλκεος εἰς Δία λεύσσω·
γὰρ ὑπ' ἐμοὶ τίθεμαι, Ζεῦ σὺ δ' Ὀλυμπον ἔχε.*



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διὸ καὶ μόνον Ἀλέξανδρος ἐκέλευε Λύσιππον εἰκόνας αὐτοῦ δημιουργεῖν· μόνος γὰρ οὗτος, ὡς ἔοικε, κατεμήννε τῷ χαλκῷ τὸ ἦθος αὐτοῦ καὶ ξυνέφερε τῇ μορφῇ τὴν ἀρετὴν· οἱ δὲ ἄλλοι τὴν ἀποστροφὴν τοῦ τραχήλου καὶ τῶν ὀμμάτων τὴν διάχυσιν καὶ ὑγρότητα μιμῆσθαι θέλοντες οὐ διεφύλαττον αὐτοῦ τὸ ἀρρενωπὸν καὶ λεοντῶδες. Misled by a more fancied than real resemblance to known portraits of Alexander, as that in the Louvre (Mueller's *Denkmäler der alten Kunst*, No. 158), the restorers made bold to recognize in the upward gaze and the sideward inclination of the head the historical peculiarities idealized by Lysippus. Nor do I think the circumstance of the marble head leaning to the right, while Alexander's leaned to the left, was taken into any account by readers as uncritical as the restorers or namers of this bust must have been.

Apart from the lack of evidence for the traditional appellation, it is hardly possible to believe that a Greek sculptor could have conceived so fanciful a piece of portraiture as it assumes. Unwarranted as it is by any of the circumstances of Alexander's death, it would certainly be an isolated phenomenon in the world of ancient sculpture. This is a conclusion forced upon every reader of G. Oertel's careful *Beitraege zur älteren Geschichte der statuarischen Genrebildnerei bei den Hellenen* (Leipziger Studien II, p. 1.)

The style of the work justifies ascribing its origin to the last period of Greek art before the Alexandrine. This connects it with the schools of Rhodes and Pergamum, with the Laocoön and the Dying Gaul. The discovery of the Pergamene marbles was destined to shed light on the "archaeological enigma."

Conze was first struck by the manifestation of a Pergamene character in the resemblance of the Alexander to the head of a young giant in the great Gigantomachia. He takes note of the likeness on page 52 of the provisional publication *Bericht über die Ergebnisse der Ausgrabungen von Pergamon*, pointing out that it is an unsought corroboration of the date previously assumed for the Florentine head. The outline cut D on p. 53 of the *Bericht* is not such as to admit of a scrutiny of the resemblance; but this certainly does not seem to imply more than close relationship of style. Still, I think the later work can be so placed as to shed direct light on the Pergamene sculptures, while becoming itself less enigmatical. Plate IV of the *Bericht* is a fine cut of the Athena group of the great frieze. Athena, easily recognized by her shield and aegis, has seized a young four-winged giant, whose body and limbs are altogether human, by the hair. Her snake

has entwined itself about his limbs and rendered him helpless ; it was probably also biting him. His doom is sealed, as is that of his brethren ; Ge, rising, near by, out of the ground, is powerless to save her child, for already Nike brings Athena the crown of victory. It has been noticed that the care taken by the artist to leave the magnificent torso unhidden by the folds of the serpent suggests the Laocoön, where the same caution is conspicuous. The head, thrown back in despair, reminds us of the Alexander. The pendant to this group was that represented on Plate III ; here also a god has overcome a young giant of human figure. To quote Conze: " Mightiest of all the gods, Zeus, in wide wind-blown mantle, his body uncovered, strides in battle ; his head, unhappily, is lost, his right hand wielded a thunderbolt, with his left he advances the aegis, his shield and weapon. On either side a vanquished giant falls ; the one to the left with the shield, his thigh bored through and through by the three-pronged, flaming lightning-bolt, raises his right hand in supplication ; he to the right, in front of the god below the aegis, rests on his knee and with his left hand seizes his right shoulder—as if struck there, was my notion. But Herr Bode recognizes in this motion, in the knotted muscles of the right arm, in the contracted sides, a being actually writhing in a fit before the god's aegis. As I hear, he has the approval of physicians, and his explanation is one not at variance with the spirit of these reliefs." The face of this fallen giant is broken off, but it is highly probable that in the " Dying Alexander " we have a copy of the head that once occupied this place. The giant whose skin-covered arm is outstretched above this one's head has been found imitated on a Roman sarcophagus, so that there is nothing remarkable in the supposition advanced ; for its substantiation it must depend on the coincidence of the required and given features. As this is a question to be decided by the eyes rather than by the understanding, I have prepared a drawing of the giant with the head restored, that is to say, copied in from a photograph of the Alexander taken before the finds at Pergamum were made. It is noteworthy that I did not have to alter the angle of vision, inasmuch as this shows that the point of view most advantageous for the Alexander naturally presents the head in the position which is the only possible one in the relief. I have taken no liberties other than making a few changes in the restored portions of the hair and slightly lengthening one side of the neck above the giant's left shoulder. This last was necessary in order

to direct the giant's gaze to the aegis that, whatever we may think of Herr Bode's remarkable suggestion, so strongly affects him.

As the appropriateness of the expression of the giant's recovered face is self-evident, the perfect correspondence with that of the match figure in the pendant group, the giant subdued by Athena, is the only thing that remains to be pointed out. A subtle Greek sense of proportion would require the adversary of the greater god to be cast in a larger mould, and this holds good of the pair. Perhaps the rather too large proportions I have given to the head exaggerate this impression.

It is a curious corroboration of the theory advanced that Overbeck (*Kunstarch. Vorles.*, p. 137, quoted by Wieseler in Müller's *DAK.*), seeing in the Florentine bust the expression of "a sudden, surprising pain," suggested an altogether analogous subject: "Capaneus, at the moment when Zeus' thunderbolt strikes him in the neck and is about to hurl him from the scaling-ladder."

ALFRED EMERSON.

NOTES.

PROPERTIUS III (IV) 7, 47-50.

While discussing Mr. Postgate's edition of Propertius' with a friend who had found it helpful in his classes, the verses cited at the head of this note came up for consideration, and on the spur of the moment I suggested an interpretation, which I felt to be venturesome, but, as my view excited lively opposition, I began to take a deeper interest in the passage, and a few hours afterwards lighted on a confirmation of my theory, which, if I mistake not, has never been advanced before.

Propertius III (IV) 7 is an elegy on the loss at sea of Paetus, a young man about town who had undertaken to mend his fortunes

¹ Mr. Postgate's excellent edition of Select Elegies of Propertius interested me so much when it first appeared (in 1881) that I called the attention of some of my Latinist friends to the book, in the hope that some special student of Propertius might give the readers of the Journal a just appreciation of the labor and thought and ingenuity that Mr. Postgate has expended on his author. But among the many troubles of the editor of a philological journal in America, not the least is the difficulty of procuring reviews by those best qualified to make them, and as my own knowledge of Propertius did not and does not warrant me to sit in judgment on Mr. Postgate's special work, I have not thought it worth while to write a notice which should contain little more than a string of points in which I differ with Mr. Postgate on general principles. Such a review would have produced an unfavorable effect on the reader, while in point of fact I hold the book in high esteem and have studied it with great pleasure. Slips there are, such as a curious mistranslation of so familiar a passage as Xen. Anab. 2, 3, 25: *οὐχ ἦκεν ὥσθ' οἱ Ἕλληνες ἐφρόντιζον*, 'he did not come; so (we may conclude) the Greeks were wise'; and in the grammatical notes Mr. Postgate sees too much, and sometimes beclouds a very simple matter by a mass of verbiage. So where he explains an everyday construction like 'si patiare, levest' (II 5, 16) in this way: "An 'allied fact' (a 'general truth' *levest*) is here substituted for the proper hypothetical apodosis (the particular statement 'you will be relieved'). See Roby, 1574 (1). 'You will see the truth of the general statement that the woe is light, supposing you bear it.' All this on 'omne in amore malum, si patiare, levest,' where *patiare* is the ideal second person, not Cynthia, but any loving soul. My admiration of Mr. Roby's syntax has its limits, but I hardly

by engaging in mercantile pursuits. His ship went down on the voyage to Alexandria.

Tu (Pecunia) Paetum ad Pharios tendentem lintea portus
obruis insano terque quaterque mari.

Then we have the usual homily on land and water and the more or less familiar mythic parallels. The close of the poem dwells especially on the hardship that so young and tender a lad should have perished by so cruel a death. And the characteristic of the youth begins v. 47:

Non tulit hic Paetus stridorem audire procellae
et duro teneras laedere fune manus,
sed thyio in thalamo-aut Oricia terebintho
effultum pluma versicolore caput.

This is the text as Mr. Postgate would have it, though he prints '*hunc* Paetus' both in text and notes. Baehrens, v. 47, has *hoc* in anticipation of *audire* which is more simple, but '*hic* Paetus' brings before us the style of the man, 'this Paetus of ours,' whatever another Paetus might do, and if Propertius had been gifted with prophetic foresight he would have known that there would be a Paetus of a very different stamp. Notice the iteration in what

thought it possible that he could have stated so common a case so badly, and on turning to his grammar I found that he provides for this class in 1546, although he has not been careful to separate it from the other and less common class of sentences of which the type is: '*si verum excutias, facies, non uxor amatur,*' in which the real apodosis is the ascertainment of the predicate (*reperias faciem, non uxorem amari*). Then, as Mr. Postgate has taken a dislike to Ovid, who had genius enough for half a dozen small poets, he is not satisfied with calling him an 'inferior Cicero in verse,' but hounds him down as a purloiner of Propertian tidbits, and that on the slenderest grounds; '*post cineres,*' for instance, is cited as a theft, a phrase which that 'conscious pedant Persius' also twists into '*cinere ulterior,*' and even Minucius Felix cribs in his Octavius II: *post mortem et cineres et favillas*. Ovid cannot even use *i nunc* and *umbra* in peace, though Propertius himself, as Mr. Postgate tells us, has in his possession a phrase which coincides remarkably with a passage quoted from C. Gracchus by Cic. De Orat. 2, 67, 269. That phrase is: *Quid tibi vis, insane?* But I am going to be more generous than Mr. Postgate. Macaulay, in his Ballad of Virginia, says 'And now mine own dear little girl, there is no way but this.' 'There is no way but this' occurs in Shakespeare *totidem verbis* (Twelfth Night, Act III, Sc. 2), but I do not accuse Macaulay of plagiarism despite his prodigious memory. However, I am determined not to lapse into a faultfinding criticism of a book which is not only far superior to the run of editions, not only useful for classes, but is full of genuine learning and manifold suggestiveness.

follows v. 51 *huic*, v. 53 *hunc* with the πολύπτωτον so characteristic of artificial poetry. For *effultum* Baehrens retains *et fultum*. Into the criticism of the rest I do not enter. *Non tulit* is οὐκ ἔτλη = *non is fuit qui ferret*, from which we get for the contrast *sed is fuit qui mallet*. 'This Paetus was not the man to bear the sound of the piping storm, but he was the man (to have) his head propped on feather pillow of shot colors in a chamber of thyine wood or (of) Orician terebinth.' This chamber the commentators have sought on land and sought in a real chamber. But we know that Paetus was in narrow circumstances (*pauper*, v. 48) and had no such luxurious chamber or bed as Mr. Postgate would render it. Propertius simply tells us what Paetus would have preferred. But the *thalamus* is not a chamber on land nor yet a bed. It is a stateroom, the stateroom of such a ship as the Romans must have known as well as we know Cleopatra's barge in Shakespeare, the ship of Hieron, built under the direction of Archimedes and fully described by Athenaios, 5, p. 206. Of this ship we read θαλάμους δὲ τρεῖς εἶχε τρικλίνους (p. 207 C), and further: ἀφροδίσιον κατεσκεύαστο τρικλινον . . . τοὺς τοίχους δ' εἶχε καὶ τὴν ὀροφὴν κυπαρίττου τὰς δὲ θύρας ἐλέφαντος καὶ θύου. This was the kind of seagoing environment that our Paetus was fit for, not the rough work of the deck that the mannish Roman lady of Juvenal delighted in (*duros gaudet tractare rudentis*).

B. L. G.

CONIECTURAE BABRIANAE.

XII 16, 17, Rutherford:

τί σε δροσίξει νῶτον ἔννυχος στίβη,
καὶ καῦμα θάλπει, πάντα καὶ κατακναίει;

Perhaps καὶ καῦμα θάλπει πανταχῇ κατακναίει.

XLV 8: τὰς δ' ἰδίας ἀφῆκε μακρὰ λιμώττειν.

It seems possible that *ιδίας* is a mistake for *ἡμέρας*, the tame goats. He has just before mentioned the other αἰγας κερούχους ἀγρίας πολὺ πλείους *Ὡν αὐτὸς ἦγε.

LIX 12: ὥς ἂν βλέποιο τὸν πέλας τί βουλευοί.

Rutherford reads after Gitlbauer:

ὥς ἂν βλέποι τὸ τοῦ πέλας τί βουλευοί

against the Babrian rules of rhythm. It would be better to retain βλέπειτο as a passive, and reading τοῦ πέλας, make the genitive depend on the substantival notion contained in τί βουλευέοι, 'that so might be seen in one's neighbor, what he was purposing' = 'one's neighbor's intention.'

LXIII 9: κακῶν δὲ πάντων ἄτε σύνεστιν ἀνθρώποις
δοτῆρες ἡμεῖς.

Perhaps ἄτ' ἐνεστιν. At any rate ἄτε seems impossible.

LXXXIX 5: ἐγὼ οὐ περυσινός· ἐπ' ἔτος ἐγεννήθην.

Rutherford seems right in supplying a negative to ἐγεννήθην; but I would then recast the verse as follows:

ἐγὼ περυσινός; ἐπ' ἔτος οὐκ ἐγεννήθην.

I do not believe Babrius could have admitted so faulty a rhythm as οὐκ ἐπ' ἔτος ἐγεννήθην.

XCV 75: καὶ νῦν ἐκείνος πλείον ἢ σὺ θυμοῦται.

θυμαίνει is an obvious correction.

XCIX 2, 3: χῶ λέων τί κωλύει;
πρὸς αὐτὸν εἶπεν, ἀλλ' ἐνέχυρον δώσεις
τῷ κυπτέρῳ σου μὴ μεθίεναι πίστιν.

Rutherford writes ἀλλ' ἐπ' ἐνεχύρῳ δώσεις and adds in his note that he considers this conjecture certain. I should much prefer, taking a feather from his own wing, to write

ἀλλ' ἐνέχυρον οὐ δώσεις
τῷ κυπτέρῳ σου μὴ μεθίεναι πίστιν;

'But won't you give your two quill-feathers as a pledge of your fidelity?'

R. ELLIS.

¹Professor Ellis has published a review of Rutherford's Babrius in the Philologische Rundschau of May 19, 1883. Among the certain emendations he classes ἡμει for οἰμοι 34, 7 (which is, indeed, perfect); ἀλετρεύων for λατρεύων 129, 5 (also very good); θηραγρευταῖς for φιλαγρευταῖς 107, 10—a large percentage of successes.
B. L. G.

REVIEWS AND BOOK NOTICES.

Französische Studien. Herausgegeben von G. KÖRTING und E. KOSCHWITZ.
III Band. 5 Heft. Heilbronn, Henninger.

The French Academy, in its celebrated dictionary, from the first edition in 1694 down to the present time, has set up a code of language which has often seriously disturbed the natural relation of pronunciation to orthography. Their decrees have perpetuated certain imperfections of orthography that are contrary to all logic, and which would have disappeared from the language long since had the fundamental doctrine that orthographic differences should correspond to phonetic differences been left to drift along its own course without any interference. This doctrine was clearly developed in the old language, as has been shown by a careful study of assonance, the importance of which is thus manifest as indicating the pronunciation of the author for that time. Of course, then, those assonances must be oldest which conform nearest to the primitive orthography, and for Old French the laws of their development and historic growth have been frequently set forth and their variations noted, both for different authors of the same epoch, and for widely separated periods of the language. These are so abundant and varied, and so full of interest to the student of pronunciation, that one of the ablest Romance scholars, Gaston Paris, is now preparing for us a *Dictionnaire des assonances*. But while the details of versification, from the earliest Low Latin sequences of the middle ages down through the whole Old French period to the passage of assonance into rhyme, have been worked out with patient care, this subject has been almost wholly neglected for certain other members of the Romance group of languages. It is, therefore, with great pleasure that we notice here the first definite and detailed presentation of Provençal assonance for the celebrated Girart de Rossilho legend—*Die Assonanzen im Girart von Rossillon, nach allen erreichbaren Handschriften bearbeitet von Konrad Müller*.

In treading upon wholly unknown ground, where every step forward is beset with the greatest difficulties, it is one of the strongest evidences of conscientious scruple that the pioneer should be modest, and the writer of the paper before us has the good taste to only claim for his labor the merit of having given us his material in the best possible completeness, with the attempt, here and there, at a solution of certain questions of versification that have hitherto been untouched, and the suggestion of many more which he feels himself unable to attack.

For the arrangement and distribution of his material the reader will find that the author has followed Rambeau in his *Assonanzen des Oxforder Textes der Chanson de Roland*, Halle, 1878, that is, the vowels *a, e, o, u* are treated, respectively, for open and closed syllables, for following nasal and, with exception of *i*, for following *i*-element. His work is prefaced by a reinvestiga-

tion of the much-vexed MS-problem, in the solution of which, with reference to their language and relations, he sides with Profs. Förster (*Roman-Stud.* V 95 seq.) and Stengel (*Jahrbuch* XII 119 seq.), who maintain that parts of the Oxford Codex are interpolations by a later hand, in opposition to Paul Meyer, who draws precisely upon these parts to prove the identity of origin of two of the most important MSS of this epic.

The general results obtained by the writer from his investigation of the assonance may be summed up about as follows: This epic was originally composed in neither pure Provençal nor pure French, but in a mixed language, which must be supposed for the first cast of this Roman, just as for the *Croisade contre les Albigeois*, for Daurel, Beton and Aigar. The essential characteristics of such a mixed dialect have been determined for the eastern branch of it, by Ascoli in his *Arch. Glott.* III, *Schizzi Francoprovenzali*, which extended in the beginning along the whole boundary line between the *Langue d'oc* and *Langue d'oïl* territories, and is preserved to us in a number of scattered linguistic remnants outside of the above-mentioned epic productions. The disappearance of this species from the main body of the literature of that time is attributed to the overwhelming influence of the Limousin court language, which had become so popular with the Troubadors as to be characterized the *dreg Limosi*, the development of which was wholly similar to what took place two hundred years later for the Isle de France. To this influence must also be ascribed the difference of language which exists between the MSS of these fragmentary epics on the one hand and those of the rhymed compositions on the other. As to the question whether these epics preserved to us contain one and the same dialect variety, or whether different dialects show themselves in this mixed Franco-provençal speech, M. holds to the latter view, and supports it with abundant proof throughout the course of his work. Daurel and the *Croisade*, for example, belong to the western group, while Aigar and Girart are assigned to the eastern division of the linguistic medley. The difference between Aigar and Girart consists principally in the characteristic treatment of *e* (*ê, î*) and *o* in the latter, which separates it sharply from the other three texts.

Everything pertaining to this celebrated Girart Roman has been clouded in such mystery that, notwithstanding the large number of works published on the subject, little has been done to clear up the uncertainty which clings about its origin both in point of history and language. The present contribution has thrown decided light on the latter of these difficult problems, and has incidentally given us many interesting details concerning the more exact relations of the Provençal dialects, and especially those varieties that make up the belt of mixed speech lying along the border line of the *Langue d'oc* and *Langue d'oïl* species.

6 Heft.

It is now about ten years since the modern school of young grammarians, among whom stand Paul, Brugman and Osthoff as chief representatives to-day, began to make its influence specially felt in Germany in opposition to the analytical processes and dissecting mania of the old advocates of descriptive grammar. Their fundamental doctrine, that all phonetic change takes place according to absolute and inviolable laws, was boldly stated and developed

with such breadth of view and extraordinary results that it has given a vivifying impulse to the new departure. By the introduction of psychology into their linguistic investigations they have assigned to its proper sphere the important principle of analogy in the formation of human speech. This psychological factor leads to the direct counterpart of the anatomical method, and enables us to fix more definitely the physiological limitations of phonetic law, all apparent exceptions to which must be explained, according to the new school tenets, in conformity with strictly psychological processes. A succinct and clear methodology founded in the system followed by these modern grammarians may be found in Paul's *Principien der Sprachgeschichte*, Halle, 1880, and it is in accordance with the principles there laid down that an enthusiastic disciple of the new faith gives us an interesting paper with the following title: *Unorganische Lautvertretung innerhalb der formalen Entwicklung des Französischen Verbalstammes*, von Dietrich Behrens.

In the first volume of his grammar Diez recognized the strong tendency to analogical creations in the Romance languages, but he failed to see the importance and extent of it for special grammar categories. In the French verb, for example, there is a great difference between the stem-syllables of the old and modern language, and in many cases the deviations in the latter from the legitimate phonetic type can only be explained by the process of form-association. As the pivotal point around which all vowel and consonantal change takes place, the accent becomes the source of *ablaut* in the French verb. Out of the twofold process of development—the tendency to differentiation of the stem elements by changing accent in the first place, and afterwards the natural impulse of the language towards uniformity—spring most of the new formations in its morphology, and these new forms are not confined exclusively within the narrow limits of one and the same given class, but are often the products of two or more co-ordinated types of the verb system.

The writer of the article just mentioned comes to his work with an extensive dialect knowledge, and for his material draws upon the old charts, chartularies, *Libri costumarum*, chronicles, Royal ordinances, etc., all of which belong to the thirteenth, fourteenth and fifteenth centuries. In the systematic and comprehensive treatment of the subject-matter this paper offers us a striking contrast to a large class of its kind, and as it bears a lexical character, the single verb *querir* will suffice to illustrate the excellent method here followed. The tendency to form-analogy becomes manifest in the early historic growth of this verb, of which we have examples in the XIII century, and especially since the XIV century, wherein the Picard and French seek to produce uniformity in accordance with the accented flexional endings, whereas the more eastern dialects obtain the same result in conformity with the stem-accented forms. It is thus that our author sharply separates the varying dialect species, and traces, as far as it is possible to do from the limited number of his original sources, the history of the different type-idioms that go to make up our present composite verb-system. Certain parts of a given class, he sometimes finds, have undergone only partial influence of the analogical principle, thus mixing original with borrowed characteristics, while others are subject to pretty close rule of interchange between the strong and weak formations, that is, the analogical type follows in some cases the strong verb forms throughout, and in other cases they take on the weak verb forms.

For the strong perfects the writer sets apart a special division in his work, since they occupy an exceptional position, and have as their basis in Latin an already modified present stem. A few interesting results obtained for this class are worthy of note, viz. the second person singular of such modern prae-terita as *vins* (venir), *tins* (tenir)—in the old language *ven-is*, *ten-is*, respectively—have passed through the intermediate forms *veins*, *teins*, before reaching the present contracted stage. So, too, with the corresponding stem-vowel forms for the first and second persons plural. The limits of this transformation period, in which *venis*, through *veins*, passed into *vins*, are put down from 1450–1550.

Again, for perfects of which *oi* (habui) is a representative (for example, *poi pavi*, *ploi placui*, *poi potui*, *soi sapui*, *toi tacui*), four distinct conjugational types are traced in the dialects that throw much light on the mode of growth of the Modern French so-called irregular forms. For the singular, we have (1) *oi ous out*, (2) *oi eus ot*, (3) *euch eus eut*, (4) *au awis aut*—the plurals of which are *oumes oustes ourent*, *eumes eustes orent*, *eumes eustes eurent*, *awimes awistes aurent*. No. 1 represents the Norman type; No. 2 comes up in most non-Norman documents; while Nos. 3 and 4 are dialect productions of the north and northeast. In and round about Amiens particularly is to be found the original home of the *eu*-diphthong species, which afterwards spread and became very abundant throughout the north. A forcible illustration of the passage, by analogy, from one grammar category to another presents itself in the sigma-perfects of such verbs as *prendre* (*pris*), *mettre* (*mis*), *dire* (*dis*), etc. The theory generally held with reference to this class is that the second person singular of the modern language is an analogical formation on the third singular, that is, Old French *pris*, *pres-is*, *prist* = modern *pris*, *pris*, *prit*, by the simple syncopation of medial *s* in *presis* and the contraction of *presis* to *pris*. The sibilant never falls out, however, in such cases in French, and hence the forms *preis*, *preimes*, *preistes* would become unexplainable by this hypothesis, but according to B.'s investigation these *si*-perfects have passed over into the class of *i*-perfects, that give the regular model *vi* (*vīdi*) *ve-is* *vit*, and by analogy to it we have our present second person singular, and first and second persons plural.

In the same way a number of perfects that originally belong to the sigma division have passed over within the literary period into the *ui*-class, or settled down altogether in the weak verb conjugation.

The author adds two very full alphabetical registers to his work, one for all the verbs, the other for all nouns and adjectives treated in it.

One only has to glance through such a contribution as this to recognize the great difficulty of writing to-day a general historical French grammar that shall in any degree represent the present status of the science. Diez troubled himself very little about dialect influence in the production of grammar forms, being satisfied to set down the resemblances to or deviations from the Latin, but the grammarian of the present is expected to trace the tangled threads of each dialect variety that helps to form the complex texture of the modern linguistic fabric. To this end the paper before us is a most valuable auxiliary, and will do much, without doubt, to stimulate further research in the rich field of dialect effects upon the composite body of our modern grammar.

7 Heft.

Old French syntax has been the subject of investigation in a long series of monographs that present us with the laws of word-position for a given, isolated period of the language and for a certain author, without in any way establishing his relation to his times, and often without even mentioning the model types of expression of the mother-tongue which were his constant companions. That these special studies were the necessary forerunners to a general system of syntax is evident, but that they only give us a partial and, for the most part, a very imperfect idea of the complex phenomena out of which they naturally grew up is manifest to any one who, through them, attempts to get at the philosophy of thought-expression for any particular phase of the language which they claim to represent. The tendencies of language are so diverse and depend so much upon the varying products of intelligence, developed out of what is gathered from those about us, that the characteristic coloring of an author's phrase can only be appreciated in many cases by a study of his inner life as the result of all the changing influences of his epoch. It is for this reason that the separate treatises just mentioned often seem to give us contradictory results, in only tracing the rich and varied growth of the Old French sentence for the individual author; but these discrepancies either disappear altogether, or are reduced to a few peculiarities of special style, when each literary monument is considered as a simple factor, a single link in the chain that binds the historic traditions of the mother-tongue to the set and rigid formula of the modern idiom. The differentiating tendencies of the Old French in the earliest stages of its structural development are so numerous, the modes of expression often so naïve and original, that the collection of them into a well-rounded, systematic whole, so that they may be viewed from the standpoint of a more general word-relation, cannot fail, I think, to be of interest to many scholars who are not versed in the details of this particular branch of syntax. For the student of Latin, especially, does this early period of modern phrase-building offer a rich source for fruitful research, in that he may frequently find here the more logical, natural expression of thought—the so-called exceptions to rule—highly developed, but of which he has only the meagre traces in the artificial constructions of the classic writers. It is, therefore, with pleasure that we greet any attempt to give us a general survey of word-relation, for however limited a period it may be, of this transition stage between the latest Low Latin usages and the more settled forms of the twelfth and thirteenth centuries. Such is the little work of fifty-six octavo pages published as the last number of Vol. III of the *Französische Studien*—*Die Wortstellung in den ältesten französischen Sprachdenkmälern*, von Bernard Völlker—in which the author covers the field for all the most important monuments of the ninth, tenth and eleventh centuries, that is, *Les Serments de Strasbourg*, *Cantilène de Sainte Eulalie*, *Fragment de Valenciennes*, *Passion du Christ*, *Vie de Saint Léger*, *Vie de Saint Alexis*, *Gormond et Isembard*, and the *Chanson de Roland*.

For all cases where these texts do not agree in their word arrangement, each one is treated separately, and note carefully taken as to whether a given peculiarity is due to assonance or some other probable cause, and whether it has continued to live as a typical or exceptional form in the later language. For the method of investigation we find here many points taken from Morf's Wort-

stellung im Rolandsliede, but for the real division and distribution of his material the author depends on the system adopted by Prof. Körting of Münster in his *Französ. Grammatik*, Leipzig, 1872. An interesting feature throughout the work is the precise way in which, when we have two varying constructions belonging to the same grammar category, the percentage of each and their changing relations for each individual document are stated. Thus in the Latin, as we know, the personal pronoun subject was indicated, as a rule, by the terminations of the verbal predicate, while in modern French the constant use of the pronominal subject is required. Here the Old French holds a middle position between these two, and in its oldest period shows a strong preference for the Latin usage, especially in dependent clauses. For principal clauses the constructions nearly balance, as is seen by the results of V.'s investigation, viz :

		<i>Expressed.</i>	<i>Omitted.</i>
Principal Clauses.—	Eulalie	50 per cent.	50 per cent.
	Passion	54	46
	Alexis	49	51
	Gormond	54	46
Subordinate Clauses.—	Passion	62	38
	Alexis	60	40
	Gormond	67	33

In these literary monuments of the Old French, however, the language cannot be considered as identical with the folkspeech, since their authors in many cases not only read and wrote Latin, but also thought in it, and hence, however exact the results may be for the texts that have come down to us, we may presume that the differences of construction were much less marked and the speech more uniform among the people. What Schlickum discovered with reference to the inversion of the subject for the thirteenth century French of Aucassin and Nicolette is here confirmed by the tenth and eleventh century language, that is, that no such thing exists as arbitrary inversion, but that it is dependent upon fixed rules, which, though not so absolute and inviolable as in A. and N., yet hold their sway with rigid force for certain well-defined positions. As the narrative flows on in this early stage of the language by principal clauses of limited compass the inverted order is much more frequently developed here than in the subordinate clauses, which number only about half as many examples as the former. No trace is yet found of that species of inversion so common to Modern French, where in an interrogative sentence the substantival subject is expressed at the beginning and then taken up again after the verb by a pronoun: *e. g. Le doge . . . n'a-t-il plus rien à dire?*

Marx, in his *Wortstellung bei Joinville* (XIII century), fails to notice a mode of treatment of the relative pronoun which characterizes in a forcible manner the Old as contradistinguished from the Modern French according to V.'s investigation. Where the subordinate clause is introduced by the relative, which in the later language has a decided predilection for post-position with reference to the verb, in the earlier idiom a very strong tendency is shown against this freedom. In fact, we only find here pre-position, except in cases where, for metrical reasons, another distribution of the phrase elements is conditioned.

Both in its mode of dealing with predicative attributes and in the relation of object to verb the French language up to the end of the eleventh century (epoch of composition of the Clermont documents, *Passion* and *St. Léger*) shows a most decided tendency to make them always precede the verb. Here we recognize Latin influence as the basis of construction, from which the language in the course of time cut loose, and finally the object receives its characteristic position after the verb—an arrangement of the phrase elements necessitated by the complete disappearance of flexional endings. For the first five texts examined the average relation stands (object + verb) 97 : 56 (verb + object). In the *Passion* we find it reduces to 56 : 30, while a little later in the *St. Léger* the difference becomes still less, 30 : 20, and finally, half a century further on—middle of the eleventh century—the order is inverted and the *Alexis* gives us 43 : 87, wherein we see that the language has acquired more stability, a more constant, definite shape, and is rapidly nearing the Modern French type.

For the construction of the adjective we find a confirmation of *Diez'* and *Krüger's* assertion, in opposition to *Morf*, that the tendency of the Old French is towards pre-position, which takes place almost universally in the oldest poetic compositions. Traces, however, of the Modern French post-position rule appear in the later compositions of this period, and particularly in the *Chanson de Roland* (end of the XI century), while in *Joinville* (XIII century) the present usage has become fully established.

For the adverb a striking contrast to the modern rule presents itself here in that it always shows a certain mobility in reference to position, but notwithstanding this changeable nature it always keeps up a close relation to the primitive word to which it refers, and in a great majority of cases precedes it. It is to the first half of the twelfth century that we have to assign the change of position for the adverbial attributes, as in the *Chanson de Roland* pre-position is predominant, while in *Crestien de Troyes* (XIII century) the Modern French post-position has become richly developed.

The writer of this paper promises us another soon, which shall continue the work on down through the twelfth and thirteenth centuries and thus give us a complete system of Old French syntax. The principal merit of his contribution is its general character. In it he has acted rather the part of compiler, throwing together and succinctly stating results of research and observations scattered through a large number of special treatises. The sharp contrast to or agreement with the Modern French syntax is noted with care, but the student who is not familiar with the older stage of the language will find the lack of examples a very great disadvantage for comparative study. References are given in abundance, and yet but few citations, which will make any practical use of it clumsy and unsatisfactory. The Latin construction, too, is frequently called up by way of illustration, but here again all examples are wanting, and the force of the illustration is much weakened or lost altogether in the effort to seek out the cognate word arrangement. No mention whatever is made of similar forms of sentence in the other Romance languages. In spite of all these minor imperfections, however, both the Romance scholar in particular and the general student of syntax will welcome this little work as a valuable help towards filling in one more important gap in our knowledge of the characteristic modes of expression belonging to a special domain of human thought.

A. M. ELLIOTT.

L'Egitto al Tempo dei Greci e dei Romani. Di GIACOMO LUMBROSO. Roma, Fratelli Bocca, 1882. 8vo, 204 pp.

Time was when Italians were the great scholars of Europe, and, though in the last two hundred years they have in some respects been outstripped by the Germans, the Dutch, and even at times by the English and French, there has been no period since the revival of letters when Italy did not contain a few men devoted to learning. Unfortunately, however, amid the fanaticism for things German that has lately become epidemic in the learned world, Italian scholarship, like everything else Italian of any value, has been wellnigh lost sight of. The result has been that while the rawest and flimsiest productions of new-fledged German doctors have been reviewed and puffed and circulated everywhere, the well-weighed works of ripe Italian scholars lie unread and unheeded on the shelves of Italian libraries. This is all the more to be deplored that ripe Italian scholarship is of a very high order, indeed of a type perhaps superior to any other. It is as exact and painstaking as the German without being unwieldy or chimerical; elegant as the French without being superficial; as solid as the English without being prosaic, and as comprehensive as the Dutch without losing itself in minutiae. In a word, Italian scholars combine exhaustive knowledge of facts and texts with correct judgment, well regulated imagination, orderly statement, and a clear, manly style of expression.

Of these characteristics the work before us is a favorable example. *Egypt in the Time of the Greeks and Romans* reads almost like one of Ebers' novels, and yet there is hardly a statement in it that is not solidly based upon authorities, ancient or modern, carefully weighed and often very shrewdly commented upon and corrected. The variety of subjects embraced in it may best be seen from the titles of the twenty-five chapters into which it is divided. These are I. Worship of the Nile. II. Representations of things from the Nile: the Palestrina mosaic. III. The Nile from a practical and positive point of view. IV. Deserts bounding the Nile valley: Ancient roads. V. Manners and customs of travellers in the desert. VI. Southern confines; Pescennius Niger in the Thebaid. VII. Pelusium. VIII. Cyrene. IX. The Egyptians under Greek and Roman rule. X. Greek citizenship. XI. The military class. XII. Alexandria. XIII. Character of the Alexandrines. XIV. Games and spectacles. XV. Worship of Dionysos. XVI. Worship of Serapis. Sacred medicine. XVII. Alexander in the Greek romance, *The Acts of Alexander the Great*. XVIII. Worship and priest of Alexander the Great. XIX. Temple and Hymn to Augustus. XX. View of Alexandria at the beginning of the Empire. XXI. The architect and inscription of the Pharos. XXII. The Necropolis of Alexandria and the mummies of the Middle Ages. XXIII. Hills of broken pottery at Alexandria (Monti Testacci). XXIV. Pompey's pillar. XXV. Epilogue.

The whole chapter upon the worship of the Nile and the ceremonies connected with it sheds a curious light upon the growth of religious ideas. Towards the end of it a tempting suggestion is thrown out as to the meaning of the first line of Euripides' *Helena*: "*Νείλον μὲν αἶδε καλλιπάρθενοι ῥοαί.*" The description of the Palestrina mosaic is very graphic, and well worth considering the suggestion (due to E. Q. Visconti) that it was made in imitation of the Egyptian carpets, so much prized by the Romans under the Empire. Indeed Prof. Lumbroso shows that the influence of Egypt upon the Romans

was very much more extensive than is generally supposed, affecting almost every sphere of life, action and thought.

The account of the canals of the Nile, their construction, locality, and the officers appointed to take charge of them, is full of curious facts which help us to form a picture of life in Egypt in the centuries immediately before and after Christ. Who would suspect that the modern Egyptian term *Djerme* or *Germe* is only the Greek *διάρημα*?¹ In chapter IV is collected all the information obtainable with respect to the little-visited desert lying between the Nile valley and the Red Sea. It contains long extracts from the MS journal of Matt. Bert and Raffenu-Delile, who visited this desert in 1800. This journal was long supposed to have been lost, but was discovered by Prof. Lumbroso in the King's library at Turin. According to this, it appears that there still exist considerable remains of the old Roman roads that crossed the desert, with their *ὄδρεῦμα* or castle-like watering stations.

Passing over several chapters we come to the ninth, which describes the condition of the native Egyptians under the Greeks and Romans. And what a condition! As we read the details of it, we ask ourselves: Is it possible for a conquering people to be just? And to think that this condition has lasted for considerably over two thousand years! Whether ruled by Ptolemy, Caesar, Khalif, Sultan or Khedive, the poor Egyptians have always been the same down-trodden, suffering people; and their future, alas! looks no brighter than their past. *Vae victis!*

The Greek settlers in Egypt, as described in Chapter X, present the same phenomena that Greek settlers in all regions did—personal selfishness, social corruption, political injustice and tyranny. It is sad to think that the most gifted people that the world ever saw should, when they lost the instinct of liberty, have sunk into depths of moral debasement which it is almost impossible to fathom. As we read Prof. Lumbroso's account of social life in Alexandria, we seem to be reading an account of Naples under the Bourbons. And even at this hour Naples suffers the awful consequences of being a Greek colony. If the Greek settlers were bad, the foreign military class described in Chapter XI were certainly no better.

The remaining chapters treat mainly of Alexandria, its buildings, public works, people, amusements, library, light-house, necropolis, etc., etc. Alexandria was in many respects the Paris of the ancient world and the Alexandrines were its Parisians. Prof. Lumbroso's account of both is most vivid and telling, but by no means flattering to the latter. In Chapter XIII he gives a very shrewd interpretation of a passage from Lampridius, which hitherto has baffled scholars. It is this: "*Volebat (Alexander Severus) videri originem de Romanorum gente trahe, quia eum pudebat Syrum dici, maxime quod quodam tempore festo ut solent ANTIOCHENSES, ÆGYPTII, ALEXANDRINI lacesiverant eum convitiolis.*" After quoting the opinions, suggestions and Teutonic guesses of the various editors, he proposes simply to omit the comma after *Antiochenses*, which omis-

¹As *διάρημα* is not in Liddell and Scott, some of the readers of the Journal may like to know that this strange word occurs in Procop. de Aedif. 6, 1, p. 109 A . . . ἐς λέμβους δὲ τὸν Αἰγύπτιον σῆτον . . . μεταβιβάζαντες, οὐσπερ καλεῖν διάρημα τὰ νενομίκασιν κτῆ. Professor Sophocles in his lexicon s. v. evidently identifies the modern Egyptian with the Greek word, for he adds: 'The modern Egyptian *j e r m* has usually two large *lateen-sails*.'—B. L. G.

sion makes the last clause mean, "On a certain festal occasion (carnival) those Egyptian Antiochenes, the Alexandrines had jibed him." This gives just the sense required, and Prof. Lumbroso shows that the Antiochenes were as famous in ancient times for their rude jibes as the Sachsenhäuser are at the present day, and that the Alexandrines were not far, if anything, behind them. Very apt is the quotation from Ausonius respecting Antioch and Alexandria:

"Ambarum locus unus . . . Turbida vulgo
Utraque, et amentis populi male sana tumultu."

The amusements of the Alexandrines, described in Chap. XIV, bespeak a people of brutal and depraved tastes. It seems they had great skill in training animals to all sorts of human-like accomplishments. They had elephants who could speak Greek and write (hieroglyphics?), and monkeys who could dance the Pyrrhic, drive tandem, and read! Prof. Lumbroso makes it evident that many of the most barbarous amusements to which the Romans of the empire gave themselves up were direct importations from Alexandria.

In no way superior to their amusements were the religious ceremonies of the Alexandrines. Their chief divinities seem to have been the god of drunkenness (Dionysos), the god of quack medicine (Serapis), and their own dissolute kings. The Roman practice of divinizing emperors was plainly borrowed from the Alexandrines. Very curious is the story told of how the Christians, when they got the upper hand, transferred the healing sanctuary of Serapis to the Saints Cyrus and John and continued the quackery on their own behalf, to the great disgust of the regular physicians. It seems the saints were homœopaths, while the Asklepiads were allopaths—which perhaps explains the mutual jealousy.¹

In Chapter XVII Prof. Lumbroso shows that the Greek romance *The Acts of Alexander the Great*, though untrustworthy is regard to the facts of the hero's life, was written by some one well acquainted with Alexandria, and is, therefore, of great value in connection with the topography of that city, whose extent appears to have been at one time almost equal to that of London. The account of the worship rendered to Alexander and Augustus is repulsively interesting. Chapter XX, entitled *View of Alexandria at the beginning of the empire*, contains many curious pieces of information, among them this, that the two obelisks, the one of which has recently been removed to London and the other to New York, were connected with the *Καὶσάρειον*, or temple of Caesar Epibaterios (*i. e.* Augustus).

In Chapter XXI the author throws cold water upon the story told by Loukian respecting the inscription on the Pharos at Alexandria. He is possibly right; but his explanation of the origin of the story seems to us in the very highest degree fanciful and improbable.

It is curious to learn (Chap. XXI) that the term *Νεκρόπολις*, now so common, was not used in ancient times except to designate the great cemetery of Alexandria, and that the old name for mummy, namely *gábbara*, was originally the Arabic name for the same spot. *Mummy* itself, it seems, comes from the Arabic *mum* meaning wax. Prof. Lumbroso quotes authorities to show that the tombs of Alexandria were rifled of their mummies in the middle ages.

¹The writer was present some years ago at the great festival of the miraculously healing Panagia in the island of Tenos, and can testify that priestly quackery is as much alive now in the Greek Church as it was in the early centuries.

The author thinks a good deal of light might be thrown upon the commerce of Alexandria if the *monti testacci* which still exist near the city were opened and their contents examined, and those who know M. Dumont's work upon the inscribed handles of earthenware jars found in the neighborhood of Athens will agree with him. After relating all that is known concerning "Pompey's pillar," he finds it, of course, "a misnomer"; but cannot determine "quale sia stato propriamente il posto, lo scopo e l'integro aspetto del monumento nella città antica." The book closes with a quotation from Chateaubriand.

Pending the general ignorance of Italian on the part of English and American scholars, it would, we think, be well worth while to translate this entertaining book into English.

THOMAS DAVIDSON.

Reale Accademia dei Lincei (Anno CCLXXIX, 1881-2). L'Omelia di Giacomo di Sarug sul Battesimo di Costantino Imperatore pubblicata, tradotta ed annotata da ARTHUR L. FROTHINGHAM, Jun. Roma, coi tipi Salviucci, 1882.

Jacob, or James, of Sarug (A. D. 452-521), bishop of Batna in Mesopotamia, is one of those voluminous Syriac writers whose works have little present intrinsic value, but great incidental importance from a linguistic, historical, or critical point of view. Ecclesiastically (a quality never to be lost sight of in a Syriac author) he was orthodox; or, as we should put it, he adopted all the superstitions and corruptions that were catholic in his time. All the writings fathered upon him number 763; but the genuine are only 231. Of these, two noted ones were a liturgy and one of the (seven) rituals of baptism in use among the Syrian churches. The rest were epistles and homilies; the Syriac homily being regularly a sort of sermon in verse, like Young's Night Thoughts, or Pollock's Course of Time. The Homily on the Baptism of Constantine, now first published by Mr. Frothingham, is extant in two MSS, one in the Vatican (10th cent.), the other in the Brit. Mus. (9th cent.?), besides a fragment in the Bodleian. These MSS are well described by Mr. Frothingham, who takes the Vatican MS as the basis of his printed text, emending it once or twice, and *very* slightly, from the Brit. Mus. MS. It is the most complete; it is dated probably A. D. 919; and its written character is the *Serta*, or that used by the Jacobites and Maronites.

The editing and printing of the Syriac text appear to be very well done. Even the misprints are rare. If the editor has noted *all* the difficult or apparently erroneous spots of the MS, the original script must be exceedingly plain and correct. Once in the printing the first *nun* is changed to a *yud* in the name Constantine; and scarcely anything worse appears in the text. The critical annotations, giving the variant readings of the Brit. Mus. MS and the Bodl. fragment, show great care, and are full of important matter. The variations which they present leave no doubt that the original composition (as in the case of modern songs and hymns) was unscrupulously altered to suit the taste of each editor or copyist. The alterations, however, do little harm; and in one or two instances they clear up a difficulty in the Vatican text. In printing the variant readings, the diacritic points have not been treated with the same care as those in the text—unless, indeed, the MSS themselves were sometimes deficient.

The translation is executed with understanding, and on a scholarly basis. It professes to keep "strettamente al testo," and generally does so; but still the translation is not as literal in all respects as an English scholar would demand. Thus the phrase "exalt the horn of" is reduced to the simple "exalt," although the Italian Bible retains the full expression. "Neglect not, O Lord, thy flock" (p. 33) is rendered "Abbi cura, o Signore, del tuo gregge." Apart from these matters of taste, the translation exhibits a number of oversights, most of them semi-clerical, which mar the beauty of the work, though they are of a comparatively unimportant character. Thus, in the former part of the homily, two words are used to characterize the leprosy of Constantine; one meaning "stinking," the other "hateful." They differ but by one letter, and the translation sometimes confounds them. Words not in the text, but supplied by the translator, are put in parenthesis, but in several instances the parenthesis is wrongly placed, and in others wrongly omitted. Sometimes an essential word is omitted in the translation, and here and there an inaccurate translation seems to occur. Most of these spots, however, seem to be oversights only, and not errors of understanding.

A few promiscuous examples will show the character of these oversights or preferences. P. 33, "una narrazione del tutto maravigliosa" is, more closely, "a narrative which is all of it marvellous." "In ogni bella guisa" is rather "with all good fruits" (or, produce); but the sense is retained. P. 34, line 2, the word for "righteous," as an epithet of Noah, is omitted in the translation. P. 37, "Error thy mother" is translated "l'Errore, tuo padre," and so repeatedly; although Error, mother of Satan, seems to play a female part on one side, that offsets the part taken on the other side by Helena, mother of Constantine. P. 40, "(l'animo)" is wrongly put in a parenthesis that probably belongs about "dicendo," eight lines below. P. 44, parenthesis is put about the first "Maria" instead of the second. The word for "baptize," though technical baptism only can be meant, is generally translated by "immergere," but sometimes by "battesimare." P. 46, "perchè secondo quel che ho udito Cristo Signore per questo venne," though perhaps justifiable in one view, is rather "because I have heard that for this the Lord Messiah came." P. 47, the words "Allora al comando . . . arme spirituali" are not in the text, but supplied from *the substance of* the annotations, and properly belong in the footnotes. Same page, "dalle acque battesimali" is, literally, "from the midst of the depths of the baptism." Of such spots as these there is an average of rather more than one to a page.

The introductory part of the work consists chiefly of a historico-critical investigation of the accretions of fable about the actual nucleus of the conversion and baptism of Constantine, with a brief notice of the place the fables have occupied in art. All this is ably and carefully done. The place of the component parts of this homily in the progression-series of increasing fables is pretty well shown; and the whole investigation is interesting and valuable. At the same time the editor fails to point out (if he recognizes for himself) the fact that Syriac homilies of the sort were written and understood as poetical expansions, not as sober fact. Ephrem's "Repentance of Nineveh" or Milton's "Paradise Lost" marks likewise the existence or the invention of fabulous embellishment. To treat this homily of James as a fable believed by either himself or his auditors is erroneous. A Syriac homily is not a Syriac chronicle.

The editor has crowded so much valuable matter into this work, and, furthermore, has approached it in such an original and fruitful direction, that he may well be excused for leaving to others the matter of its Biblical words and phrases. With one or two exceptions he has avoided in his translation the apparent allusions, even though they might help interpret the homily. The work is to be heartily welcomed. It is much nearer perfection than is to be usually expected of an *editio princeps*.

I. H. H.

Sammlung kurzer Grammatiken Germanischer Dialecte. Angelsächsische Grammatik von EDUARD SIEVERS. Halle, Max Niemeyer, 1882.

A treatise on Old English grammar, scientifically conceived, independently wrought out, abreast of the highest contemporaneous scholarship, discriminating between the various stages in the development of the language, as well as between the coexistent dialects, and paying due regard to it both as a separate entity and as a member of the Germanic family, has hitherto been a *desideratum*.

How inadequate have been the conceptions which living scholars, as well as those recently deceased, have entertained of phonology, for instance, may be illustrated by reference to one or two manuals lately published. Körner, in his *Einleitung in das Studium des Angelsächsischen* (Heilbronn, 1878), thus disposes of the Lautlehre in a note to p. 2: "Eine wissenschaftliche Darstellung der angelsächsischen Lautverhältnisse ist von Grein, Koch und Holtzmann in ihren Grammatiken versucht worden. Sie erfordert Kenntniss der verwanten Dialekte, ist aber, wie sich schon aus dem Folgenden ergeben wird, für das Angelsächsische von besonderer Schwierigkeit und geringem Nutzen; daher ist hier auf sie verzichtet."

Grein, in his *Kurzgefasste Angelsächsische Grammatik* (edited by Professor Wülcker, of Leipzig, in 1879), devotes 7 pages to an introduction, and nearly 15 to a sketch of the Old Anglo-Saxon and Northumbrian Literature, but only 9 to the Anglo-Saxon vowels, and less than 12 to the consonants.

Holtzmann's *Altdeutsche Grammatik* (1870) contains valuable paragraphs treating of Anglo-Saxon phonology, but the premature death of the author prevented him from finishing even the volume devoted to the phonology of the Germanic dialects. Since that year a number of monographs have been published, chiefly in the form of contributions to periodicals and the proceedings of learned societies, and it was from these scattered pages, not always to be collected without great difficulty, that the student was obliged to glean the facts and theories which would enable him to construct the outlines of Anglo-Saxon grammar. From this labor he is at once relieved by the appearance of Sievers' manual, of which it is scarcely too much to say that it fulfils the various conditions specified in the opening paragraph of this review.

The series of brief grammars of which this forms the third volume, has thus far issued from the hands of the so-called 'Junggrammatiker,' Braune contributing the Gothic Grammar, a model of accuracy and elegant simplicity, and Paul the Middle High German Grammar. We say the so-called 'Junggrammatiker,' for this is an appellation bestowed upon them in derision by their opponents, and never accepted by this little band of earnest and high-hearted scholars;

but by whatever name they are known, it can no longer be disputed that they are accomplishing a revolution, at once beneficial and inevitable, in the methods of comparative philology.

An epoch of riotous and over-fanciful speculation is to be succeeded by one of sober induction; abstractions are no longer to usurp the place of concrete existences, and serve, in the hands of philological jugglers, to mystify at once an uninitiated laity and the hierophants themselves. In short, the scientific temper is to prevail in matters linguistic, an event which is sure to be regarded with dismay both by super-subtlety and by dilettanteism. But whatever be the outcome of the movement, its leaders have contented themselves with very modest professions. Their aim, so far as it may be gathered from their authoritative statements, is but to rescue one small province, that of phonology, from the dominion of caprice and to bring it under the reign of law.

One or two quotations from Paul, whose fondness for philosophical discussion has made him the most prominent expositor of the new doctrines, will serve to characterize the points at issue, and to show how they are regarded by the 'Junggrammatiker.' In the *Beiträge zur Geschichte der Deutschen Sprache und Literatur*, Bd. IV, Paul says:

"So lange man es mit den Lautgesetzen nicht sehr streng nahm, so lange fand man nicht sehr viele erhebliche schwierigkeiten bei der vergleichung der germanischen dialecte oder der indogermanischen sprachfamilien unter einander in bezug auf ihre declination und conjugation. Es genügte eine ungefähre ähnlichkeit der formen, die allgemeine möglichkeit oder wahrscheinlichkeit der bei der vergleichung postulierten lautübergänge" . . . pp. 317-8.

"Die voraussetzung, von welcher dabei ausgegangen wird, ist die, dass jedes lautgesetz mit absoluter notwendigkeit wirkt, dass es ebenso wenig eine ausnahme gestattet, wie ein chemisches oder physikalisches gesetz. Mit dieser voraussetzung steht und fällt die von mir befolgte methode. Wer sich entschliesst die erstere zu verwerfen, der braucht auch die letztere nicht anzuerkennen. Er verzichtet aber damit überhaupt auf die möglichkeit, die grammatik zu dem range einer wissenschaft zu erheben." *Beiträge VI 1.*

"Eben das vertrauen zu der absoluten gesetzmässigkeit der lautbewegung ist es, wodurch die sprachwissenschaft der naturwissenschaftlichen evidenz nahe kommt, und wodurch sie in bezug auf sicherheit ihrer resultate allen anderen historischen wissenschaften so sehr überlegen ist. Dieses vertrauen dient ihr wie jeder naturwissenschaft als fundament, auf welcher sie aufgebaut wird. Es wird ihr dadurch das ziel gesteckt, alle lautlichen veränderungen unter gesetze unterzubringen, die mit absoluter consequenz wirken. Dieses ziel dient aber zugleich als prüfstein für die richtigkeit der aufgestellten gesetze und liefert die probleme, welche durch die forschung zu lösen sind. Nirgends darf man sich bei einer vielfältigkeit oder inconsequenz der behandlung eines und desselben lautes unter denselben bedingungen beruhigen. Kann nicht durch andere fassung der lautgesetze abgeholfen werden, so ist die unabweisbare consequenz, dass von den verschiedenartigen veränderungen unter gleichen verhältnissen immer nur die eine auf physiologischen wege entstanden sein kann, während die andere oder die anderen sich auf psychologischen wege, durch formenassociation eingedrängt haben müssen." *Beiträge VI 3.*

But to return from the general principles advocated by this school to the author of the particular volume which we have undertaken to notice. Sievers has made his mark upon the science of comparative philology by his labors in the two allied branches of grammar and phonetics. Before he had undertaken any serious original work he had shown himself a competent translator from modern Scandinavian; his version of Wimmer's *Oldnordisk Formlære*, the standard grammar of Old Norse, was made in 1871, and that of Thomsen's *Den gotiske sprogklassens indflydelse paa den finske* was completed about the same time. His conscientiousness and laboriousness as an editor have been well illustrated in his *Tatian* (1872), *Murbacher Hymnen* (1874), and *Heliand* (1877).

In addition to remarkable industry, his contributions to Paul und Braune's *Beiträge* display acumen of a rare order; in them he attacks no difficulty which he does not in some measure clear up; and even those who repudiate the doctrines advanced by the 'young grammarians' are obliged to concede that papers so rich in lucidly arranged material, and bearing in every part the impress of a master's hand, are indispensable alike to the student of Common Germanic and of the particular dialects treated. But it is as the leader of German phonologists, and the peer of Ellis and Sweet, that Sievers has won the widest and most indefeasible reputation. A keen perception of all shades and varieties of speech-sound, and a rare command of his own vocal organs, enabling him to reproduce any sound articulated in his hearing, and instantly to catch what is popularly denominated the 'accent' of the most difficult and unfamiliar tongue, are the special qualifications which have given him his present standing in this department. His *Grundzüge der Lautphysiologie* was published in 1876, and his *Grundzüge der Phonetik* in 1881.

It was not as a tyro, therefore, that he approached the difficult task of writing an Anglo-Saxon grammar. Indeed, the only risk to which he exposed himself was that of disappointing extravagant anticipations. As to the manner in which he has answered these expectations, it is enough to say that his grammar, though we should not dare to affirm that it is the final word on Old English phonology and inflection, does in truth mark a distinct and notable advance upon any similar work which has preceded it, and practically supersedes them all. Since the publication of Grein's '*Sprachschatz*,' no book so indispensable to the non-professional student of Anglo-Saxon has appeared. Nor will it be hardly less welcome to the English philologist, whatever his attainments, since he here finds collected, under one point of view, what must else be sought through many volumes, and is nowhere to be found in equal fullness and clearness. All that is important in the utterances of Old English scholarship for the last ten years is summed up in its pages, and the compilation is enriched by a great number of particulars supplied by the author's own observation. Yet these particulars by no means represent Sievers' full share in the materials of the volume, many of its most noteworthy paragraphs being mere abridgments of his own articles in Paul und Braune's *Beiträge*. In illustration of this fact it will be sufficient to compare the treatment of the *ð*-, *jð*-, and *i*-stems, §§252, 256 and 262, with PB I 486-504; the syncope of medial vowels, §§143-8, with PB V 70-82; the succinct note on *cuman*, §390, Anm. 2, with PB VIII 80-9; and the statement regarding the instrumental, §237, Anm. 2, with PB VIII 324-33.

Not only is there a notable accumulation of facts, but they have been

arranged in an orderly and perspicuous manner which leaves little to desire. The exceptions which will be noted further on scarcely detract from the pleasure with which the student greets this lucid exposition of a most difficult subject. In particular is this true of the chapters on the vowels, hitherto the most hopelessly perplexed of all the intricate webs which the student of Old English grammar was called upon to disentangle.

The system of cross-references adopted, while at first blush it seems unnecessarily minute, proves in the end to be a convenient guide through the mazes of phenomena presented by the vowels. No less helpful are the pages (13-22) at the beginning of chap. III. Here the Anglo-Saxon vowels are considered in their relation to those of the Germanic and West Germanic, the treatment being ranged under two heads: (1) The Vowel Systems of Germanic and West Germanic, and (2) The Correspondences of the West Germanic Vowels in West Saxon.

The quantity of the Anglo-Saxon vowels has here been rigorously observed, the authority of the manuscripts being accepted as paramount. Besides the introductory remarks in §8, the fluctuations of quantity are examined in §§120-5. Of these the most unaccountable are the prolongations of vowels followed by single consonants in monosyllabic words, though these are supported by the same evidence as similar prolongations before nasal + consonant or liquid + consonant.

The prominence given to the unstable *y* and *ÿ*, §§31-3, together with the remarks on the *i*-umlaut of *ea*, *ed*, *eo* and *eo*, §§97-100, are reassuring at the outset, since they seem to contain the explanation of a puzzling phenomenon; closer inspection shows, however, that the difficulty is only shifted to other ground, remaining at last as inexplicable as before. Perhaps Sweet's suggestion, Pastoral Care, p. xxvii (cf. pp. xxix and xxx), is the most satisfactory yet advanced; cf. also ten Brink in Anglia, I 518-19.

Intimately connected with the last is the paragraph on palatal umlaut, §101. Its effect, according to Sievers, consists chiefly in the transmutation of the *eo*, *io*, produced by breaking before *h* + consonant, into *ie*, which *ie* ultimately suffers change into *i* and *y*. The discovery was made by Paul, who (Beiträge, VI 46-7) first called attention to the phenomenon, and provided the explanation, though he probably owed something to Möller, Die Palatalreihe der Indogermanischen Grundsprache im Germanischen, pp. 56-7.

The *i*-umlaut of short *o*, §93, deserves a passing notice. Sievers shows that the true umlaut of *o* is *e*. His theory is based upon Paul, Beiträge, VI 242, with which may be compared Cosijn, Kurzgefasste Altwestsächsische Grammatik, p. 36, D; for the older view regarding *ele* see Sweet, P. C. p. 491, though this explanation is modified in Anglia, III 157.

The plan of this book is essentially that of Braune's Gothic Grammar, *i. e.* the two exhibit the kind and amount of similarity which would naturally be expected between two grammars emanating from the same school. Braune had, however, the advantage of dealing with a much less complicated subject, and hence is not obliged to resort to long and frequent digressions. From the very nature of the case it is impossible for Sievers to attain equal symmetry in the disposition of his materials. The vowel system of Old English being extremely complicated, and the plan of the book including some account of

dialectic variations in the language, many of the inequalities to be noticed would seem to be unavoidable. Others may be explained from the fact that the grammar has grown by accretion from a set of University lectures. Sievers himself says in the preface: "Der kurze abriß, den ich jetzt der öffentlichkeit übergebe, macht demgemäss nicht den anspruch, mehr zu sein, als eine solche überarbeitung, obwohl über der umschrift und durchsicht manches ergänzend hinzugetreten ist, was der ursprünglichen fassung fremd war." Accordingly, the book is neither a mere outline of West Saxon grammar, containing only the essentials, nor an exhaustive treatise, discussing the various dialects in full. It is rather a compromise between the two, with a distinct leaning toward the original plan of the series, which is that of compendious manuals.

This conception might have been more strictly carried out, without material detriment to the value of the book, and with a decided gain as regards symmetry of execution and unity of impression. Such details, for example, as are introduced in §271, Anm. 2, §285, Anm. 2, and §374, Anm. are rather lexical than grammatical, and will be more welcome to specialists than to the great body of the students for whom the book, or at least the series, is designed. Who constitute the latter class may be learned from the preface to Braune's Gothic Grammar, which closes with these words: "Diese grammatiken sollen gedrängte, jedoch nicht zu dürrftige darstellungen bieten und besonders anhängern zur einföhrung in das philologische studium der betreffenden sprachstufe dienen."

A number of misprints and minor errors have been noted, but they are hardly serious enough to occasion the student much difficulty, and will no doubt be corrected in a second edition.

ALBERT S. COOK.

M. Tullii Ciceronis Oratio pro Archia. Texte Latin publié d'après les travaux les plus récents. Avec une nouvelle collation du Gemblacensis, un commentaire critique et explicatif, une introduction et un index par ÉMILE THOMAS. Paris, Hachette et C^{ie}, 1883. 63 pp.

Although the defense of the poet Archias is not, as Tacitus says, one of the orations which made Cicero great, and although in point of argument it is far from strong, it has always possessed a great charm for scholars and book-lovers, for those who believe that through literature the world lives. The present edition comes to us in a very attractive form, with a good introduction stating clearly what is known about the life of Archias, reviewing briefly the attacks which have been made on the genuineness of the speech, with a refutation of the charges, a good account of the sources of the text, and an analysis of the oration. The notes are full and helpful, and the editor shows a much greater familiarity with the recent results of German scholarship than was formerly common in French editions. Draeger, Naegelsbach, Seyffert, Merguet and Mueller are frequently referred to, but the editor has preserved an independence of judgment throughout, *e. g.* in §10 he keeps *inrepserunt* of the MSS against Baier and Halm who read *inrepserint*, and explains thus, making the idea of time prominent: "*alors que beaucoup d'étrangers ont pénétré dans les villes italiennes, au moment où ils profitent de droits frauduleusement acquis, repoussera-t-on*

Archias?" In the same section he makes the mistake of referring *civitate* to the Roman franchise; the franchise of Heraclia is meant, as the context shows. In §19 the note on *suum*, which is omitted by some editors, is not full enough; the preceding *dicunt suum* conditions the use of *suum* here, for which Cic. De Rep. I 27 uses *pro suis vindicare* and elsewhere *sibi vindicare*. The orthography of the edition is not as good as one might reasonably expect. Not to speak of the genitives in -ii which are kept throughout, a point where there is room for hesitation, one is pained to find *inficior* (immediately before *confiteor*), *conditione*, *solatium*, *dampnationem*, *contempnenda*, and there is a certain inconsistency in reading §24 *innumerabilis copias* and in §31 *apud omnes*. It would be well, however, if all editions were as free from mistakes.

M. W.

REPORTS.

REVUE DE PHILOGIE. Vol. VI.

No. 4. Nov.

1. Pp. 193-203. Critical remarks on Liv. XXIII-XXV, by O. Riemann. The author is preparing an edition of these books of Livy, and has made some emendations, 65 in all, which he here presents and discusses. The most of them, as he remarks, are not of great importance. I cite a few as samples. XXIII 5, 15: Nec Hannibal se vicisse sentiet nec Romani victos esse. Read: victos [*se*] esse. XXIV 6, 7: Himera amnis, qui ferme dividit insulam, etc. Read: ferme [*mediam*] dividit. XXV 28, 6: inopiam quaeque (P *quequae*) ipsi inter se fremere occulte soliti erant, conquesti. Read: inopia[*m alia*]que quae.

2. Pp. 203-4. L. Havet discusses Quintil. I, 1, 24. For *etiam brevia* the Ambrosianus has *ei *iniorevia*, which is for *ei* and *via* with something like *meliore* between, and no doubt represents the true reading.

3. P. 204. O. Riemann suppresses *äv* before 'Ακαρνανίαν in Thuc. II 80 as having grown out of a dittography of *ακ*.

4. P. 204. L. Havet expresses the opinion that Saturnian distichs were common at a certain period, and that the word *elogium*, i. e. ἐλεγείον (*distich*), thus originated.

5. Pp. 205-8. Book notices, chiefly by O. R.

6. *Revue des Revues*, pp. 225-337 (end). France (completed), Great Britain, Greece, Italy, Holland, Russia, Sweden, Switzerland.

Vol. VII. No. 1. Feb.

1. Pp. 1-5. On the exclamation *malum*, by Constant Martha. The author published an article on this subject in Vol. III, pp. 19-25, maintaining that *malum* as an exclamation always denoted impatience at some sort of folly. (See this Journal, No. 1, p. 84). This view was questioned by E. P. Morris in this Journal, No. 10, pp. 208 ff. M. Martha writes the present article for the purpose of making known to the readers of the *Revue* the new examples found by Mr. Morris, and of defending the views expressed in his first article.

2. Pp. 5-6. Ten passages of Pomponius Mela emended by L. Havet.

3. Pp. 7-12. On certain omissions in the text of Demosthenes, by Henri Weil. Seven lacunae pointed out and filled. This article merits attention from students of Demosthenes.

4. Pp. 13-22. On a Latin grammar in a MS of the eighth (?) century belonging to the library of Nancy, by A. Collignon. This grammar, or *Glosa de partibus orationis*, is composed of a series of extracts from ancient grammarians without much system. Sometimes the author is given, but in many cases this is neglected. The chief value of the work consists in the fact that it contains

a considerable number of hitherto unknown passages of the grammarian Virgilius Maro. [In one of these the question whether the nominative can properly be called a case or not is discussed and decided affirmatively. The subject is viewed, however, from a standpoint very different from that of modern grammarians.]

5. P. 22. L. Havet emends a verse of Naevius (Nonius, ed. Quicherat, p. 159 M., 6): put *cum* before *sis*.

6. P. 22. In Xen. Resp. Lac. 2, 6, O. Riemann proposes *καὶ εἰς* [τὸ εἰς] *μῆκος* [ἂν] *ἀνέεσθαι κτέ.*

7. Pp. 23-32. On the Paris MSS of the Distichs of Cato, by Max Bonnet. The only edition of Cato (F. Hauthal, Berlin, 1870) that pretends to make any use of the Paris MSS is exceedingly unreliable. H. J. Müller called attention to this fact in 1876, and in the same year the *Revue Critique* (II, p. 187) exposed the carelessness of Hauthal. But these warnings were fruitless, as is shown by the most recent edition (*Poetae Latini minores*, ed. Aem. Baehrens, vol. III, Lipsiae, 1881). Bonnet examines and classifies the MSS in question, comparing them with others, and discusses a considerable number of passages, taking occasion to investigate some metrical and grammatical points.

8. Pp. 33-60. Criticism of Greek texts at the École des Hautes Études (Continuation. See this Journal, No. 12, p. 491.) II. Demosthenes. Y. discusses *καὶ γάρ τοι* and submits 43 emendations. 1. Y. shows that *καὶ γάρ τοι* is not a quasi-synonym of *καὶ γάρ*, but rather of *τοιγάροι* (*itaque*). One difficulty (p. 358, ch. 56) he proposes to remove by emendation (*καὶ γὰρ* [οὐ] *τοι*, or something of the sort). 2. The emendations, though rarely convincing, all merit attention.

9. P. 60. Y. calls attention to the fact that in Dobree's *Adversaria* on Soph. Trachin. 574 we find "aenigma *Sophocle* dignum," for which Y. wishes to read 'sphinxge dignum.'

10. Pp. 61-64. Seven passages of L. Annaei Senecae dialogorum, Lib. I, discussed and emended by J. van der Vliet.

11. P. 64. For *excoluisse* in Martial, Epigr. VI 52, 4, Henri Le Foyer proposes *expoliisse*, which he finds on the margin of a *variorum* edition.

12. P. 64. In Prudentius, Cathemerinon 2, 12, E. C. restores *pallescet* for *pallecit* from a good MS.

13. Pp. 65-77. Emile Chatelain publishes a work entitled *Exempla diversorum auctorum*, contained in a Vatican MS (Reginensis 215) of the ninth century, and, in abridged form, in a MS (4883 A) of the tenth century in the national library of Paris. It contains a list of 250 verses selected from different poets for the purpose of illustrating quantity in various words. In Reginensis 215 the words illustrated are written opposite the verses in which they occur, and are provided with quantity marks. In most instances the author is given, but this is so often erroneously done that no confidence can be placed in the assignment of verses not otherwise known to us. The examples are evidently taken, not from the texts of the authors cited, but from grammarians and from anthologies now lost. A supposed "interim," for instance, is illustrated thus: "Iuv.: Interim veteres laudat lasciva patronos," which should be: "Martial.

(V 34, 7): *inter tam veteres ludat l. p.*" Chatelain has succeeded in assigning all the verses except about twenty to their authors. Some of the twenty are barbarous.

14. Pp. 78-81. Remarks on certain passages of the *Libellus pro synodo* of Ennodius, by L. Duchesne. This author uses the inflated, affected style which we find in the *Opus Paschale* of Sedulius (see this Journal, No. 9, p. 115). Duchesne emends a few passages.

15. P. 81. Michel Bréal expresses the opinion that in Liv. III 33, 8 (with Döring's emendation, *est* for *esset*) *privatus* is equivalent to *reus*.

16. P. 82-94. Unpublished text of Domninus of Larissa on arithmetic, with translation and commentary, by Ch. Em. Ruelle and J. Dumontier. This work is devoted to the solution of a single problem—how to divide one fraction or "ratio" by another. The author, being unacquainted with the method of inverting the divisor and multiplying, resolves the dividend into two factors, one of which shall be equal to the divisor. This he does in four ways, one of which I give: To divide $\frac{1}{3}$ by $\frac{1}{4}$. Let $\frac{1}{3} = \frac{x}{y} = \frac{x}{y} \times \frac{y}{4}$. But $3:12::4:x = 16$. Hence $\frac{1}{3} = \frac{1}{6} \times \frac{4}{1}$, and $\frac{1}{3} \div \frac{1}{4} = \frac{1}{6} = \frac{1}{6}$. In the original, of course, no equations are written. Diagrams, however, are used; but they seem to have been added by some one else, for the text does not mention them.

17. Pp. 94-96. Note on a MS of Bourges containing Cicero's Letters, by E. Chatelain. This note demonstrates the worthlessness of the MS in question, and is published for the purpose of saving others a useless journey to Bourges.

18. Pp. 97-101. Note on two MSS of the *Historia Apollonii regis Tyri*, by O. Riemann. Among the many MSS of this romance, two of the thirteenth century, now in Rome, have a common text which is totally different from that of the other MSS. They present a developed text which in places is a literary improvement. I give a sample. Ordinary text (ch. 32): "*Et cum puella Deum deprecaretur, subito piratae apparuerunt.*" The two MSS (M R): "*Puella levavit manus et ait: Pater Apolloni, si vivis, vale, et sancta desideria, valete. Et dum hec diutius loquitur, supervenerunt pirate.*" Riemann collates a few chapters.

19. P. 102. L. Havet gives a new metrical division of a verse of Naevius (Nonius, 486, 27), and emends Statius, *Achil.* 1, 73 (*inum* for *unum*).

20. Pp. 103-12. Book notices, chiefly by the editors.

M. W. HUMPHREYS.

NEUE JAHRBÜCHER FÜR PHILOGIE UND PÄDAGOGIK. FLECKEISEN U. MASIUS. 1881.

VIII-IX.

85. pp. 513-33. Review by W. Clemm of Meyer's *Griechische Grammatik*, Leipzig, 1880. A connected, scientific presentation of the subjects pertaining to Greek grammar was lacking. Kühner's work was a dozen years old, and when it appeared was not up with the times. Only one class of the forms had been treated—the verb, by Curtius. The other systems of inflections as

well as phonology needed a new discussion which would use all the material which had been gathered. So we were all ready to welcome the work of Meyer. He takes the newest hypotheses as his starting-point. In this he is a little intemperate. Sometimes he is not ready to retain the old view even where the new view offers no more plausible explanations. As long as no strong root-forms are shown for *ἀπό, ἀνά, ἀνθός, ἄλλος*, etc., the reviewer does not share the author's prejudice against *ā* where it is not a weak form of *ā*. He considers *δγκ-νω* to be quite unsupported, and thinks the root *δακ* as possible as *αγ* and *αρχ*. He believes Meyer to be unjust toward sporadic changes. *κίδναται* and *σκίδναται* cannot be explained as dialectic variations. Meyer's view of final *σ* in adverbs like *καλῶς* (that it is brought by analogy from *ἐξ, ἐκτός*, etc.) is not so probable as that of Curtius (that *-ως = -āτ*). A chapter on the use and force of the accent is needed. The work, then, gives us a skilfully arranged view of Greek grammar according to the latest theories and based on extensive material. It does not, however, give the reasons for the views which are expressed, nor a complete and reliable repertorium of the facts of the language.

(76.) pp. 534-36. G. H. Müller in *Soph. Trach.* 651 reads *χρόνον παλαιόν* for *χ. πελάγιον*, comparing *Soph. O. T.* 561, *Ajax* 600; *Phil.* 493. In *Trach.* 958 for *μοῖνον* he reads *μῶλυν* ('weak,' 'exhausted,' cf. *Nicand. Ther.* 32) to give the desired contrast to *ἀλκιμον*. In *Ant.* 351 for *ἐξεταί* he reads *ἐθίζεται*, construed with two accusatives on the analogy of *παιδεύω*, etc.

In *Soph. El.* 1394, J. Golisch reads *οἶμα* for *αἶμα*, comparing *Hom. II* 752.

86. pp. 537-42. H. Stadtmüller offers conjectural emendations to the Homeric hymn to *Hermes*, *μύων* for *μηῖδών*, 92; *ἀρθενθείσας* for *ἀθρόας οὐσας*, 106, to introduce a reference to the watering as well as the feeding of the cattle; similarly *ἀρδροῦς* for *ἀγροῦς*, 399, cf. Σ 521; *βιβᾶς ποσὶ πυρπαλάμην* for *βιβᾶ, ποσὶ καρπαλίμοισιν*, 225, cf. 357; *κέντρων* for *κέρτομον*, 336 (cf. *Ar. Clouds* 444 and the scholion *κέντρων λέγεται καὶ ὁ κλέπτῃς*); *οὐρανόν* for *κραίνων* 425; *σπυρθίζων* for *σπουδῇ ἰών*, 305, cf. Photius *σπυρθίζειν σφαδάζειν*, etc.; *ύλακτῶν* for *ἀκούων*, 280; *ἀνέφηνας* for *μέμηλας*, 437; *ὑπ' ὁμοκλῆς* for *ὑπὸ πολλῆς*, 373; *ἔσπετο* for *ἐπλετο*, 117, cf. 426, 440; *ἐνιπὴν*, for *ἐαυτόν*, 239, cf. Δ 402, κ 448, ε 446, etc.

(64.) p. 542. R. Dressler in *Stobaeus Anth.* CXX 27 reads *θανάτω γὰρ γίγνεται διάλυσιν καμόντος σώματος τοῦ ῥυθμοῦ πηρωθέντος κτλ*

87. pp. 543-52. K. von Jan defends his view (*Jahrb.* 1879, pp. 577 fg., see *Am. Jour. Phil.* I 373, II 531) that the Greek flutists regularly played two flutes (oboes) at the same time, one flute giving the melody, the other accompanying it on a higher note which was probably like that in the modern Greek churches, merely the keynote, dominant, or sub-dominant. The use of the two flutes is shown by the Greek vases which bear scenes of banquets, etc. In the museum at Munich a double flute is represented on 20 vases with black figures, and on 37 with red figures. On one side of another vase is a satyr with a flute in each hand; on the other side is a satyr with a single flute in the left hand, but the position of the right hand indicates that he has thrown the other flute into the air. If this one example be granted, then the Munich vase collection contains 59 examples of the double flute and not one of the single flute.

If the two flutes were customary at banquets, doubtless they were at concerts, where the music would be more elaborate.

That the two flutes sounded different notes is indicated most clearly by the words of Aristoxenus in Plutarch *de mus.* 36 ὑποκρίνειε γὰρ ἂν τις ἀκούων αὐλητοῦ πότερόν ποτε συμφωνοῦσιν οἱ αὐλοὶ ἢ οὐ, in connection with the definition of Pseudo-Euclid *de mus.* 8 σύμφωνα μὲν οὖν [διαστήματα] ἔστι διὰ τεσσάρων, διὰ πέντε, κτλ., and ἔστι δὲ συμφωνία μὲν κρᾶσις δύο φθόγγων δξυτέρου καὶ βαρυτέρου.

88. pp. 553-61. J. S. Kroschel on the Νέφελκυστικόν in the oldest MSS of Plato. Greek grammarians assert that Attic prose-writers used this ν in the dat. plur. in -σι, the 3 pers. sing. in -ε, and verbs ending in -σι, no matter whether consonant or vowel followed, and that to this statement μαρτυρεῖ πᾶσα βιβλος. We must then believe that this was the custom in the MSS used by these grammarians; but that the Athenians in the time of their earliest prose-writings did not regard the ν as a fixed element of the endings is shown by the usage of Aristophanes, who has always been considered a model of Attic style. He prefers the ν ἐφ. to elision, but avoids it before consonants as far as he can, except where he introduces old-fashioned forms like τοῖσιν, μαθηταῖσιν, etc. He uses it before consonants only about once in 50 verses, most frequently in ἔστιν. But the copyist changed even the words of poets by attaching the ν. So in Eur. Andr. 275 ἦλθ' was changed to ἦλθεν, Hel. 316 ἔλεξ' to ἐλεξεν. Probably the final vowel was written in the copy and ἦλθε ὁ τόκος seemed obviously wrong. In poetry we are generally able to detect such insertions by the metre.

In Plato the wearisome repetition of the forms with ν is due mainly to the codex Clarkianus. This codex is compared by Kroschel with the codex Venetus which was written in the XII century. The independence of the latter is shown and that its readings have not been corrupted by conjectures. It is thought that the sources of these two codices were divided before the V century. Since the Ven. gives in many points the older tradition, it deserves more weight than the Clarkianus. This would remove the ν from at least half the cases. It is noticeable that in the dialogues of the first tetralogy, a "second hand" (conjectured by Kroschel to be Arethas himself) has erased a large proportion of the unnecessary cases of ν. It is possible that the MS from which the Clark. was copied had many abbreviations and used the same mark for ἐστί and ἔστιν. This conjecture is confirmed by the fact that ἐστ' no longer appears in the MS and ἐσθ' only rarely. Moreover, in the Platonic MSS this ν is wrongly inserted in the quotations from Pindar, Simonides, and Euripides. In this connection Kroschel conjectures in the ode of Simonides quoted Prot. 346 d, that the original was ἐπεὶ οὕτω, etc., (for ἐπειθ' ὑμῖν εὐρών where Bergk now reads ἐπὶ τ' ὕμνῳ), comparing the gnome ascribed to Simon. Amorg. πάμπαν δ' ἁμῶμος οὐτις οὐδ' ἀκήριος.

89. pp. 561-64. K. J. Liebhold in Plato's Parmenides 135 d for ἐλκυσον δὲ σαντὸν καὶ γύμνασαι reads ἐκλυσον κτλ.; in 160 d he inserts οἶόν τε between γιγνώσκεισθαι and ὅταν. In 164 a for οὔτε ταῦτα οὐθ' ἑτέρα ἔστιν αὐτῷ he reads οὔτε ταῦτα αὐτῷ οὐθ' ἑτέρα ἔστιν αὐτοῦ (sc. τοῦ μὴ ὄντος). In Gorgias 500 c he omits οὐ before τί ἂν μᾶλλον and ἐπὶ before τόνδε τὸν βίον. In 501 a he reads ἡ δ' ἐτέρα τῆς ἡδονῆς πρὸς ἣν ἡ θεραπεία αὐτῇ ἔστιν ἅπασα, οὔτε τι τὴν φύσιν σκεψαμένη οὔτε

τὴν αἰτίαν κομιδῇ ἀτέχνως ἐπ' αὐτὴν ἐρχεται ἀλόγως κτλ. In 503 c, τοῦτο δὲ τέχνη τις εἶναι read εἴη ἂν for εἶναι. In 513 b, to form the desired contrast with τῷ ἀλλοτρίῳ, ὁμολογουμένῳ τῷ λόγῳ is suggested for λεγομένων τῶν λόγων. In 513 d, the use of πρὸς ἡδονὴν ὁμιλεῖν is illustrated by 521 a, Phaedrus 272 d, Laws X 866 c and Ep. 317 d. In 513 e it is suggested that σκοπεῖ may have been dropped by the copyist after ὁ θεραπεύομεν.

50. pp. 565-68. Critical notes of H. Marquardt on Galen περὶ ψυχῆς παθῶν.

91. pp. 569-592. A notice by F. Hultsch of Vorlesungen über die Geschichte der Mathematik von M. Cantor. I. Leipzig, 1880. The book is rich in interest and instruction. The treatment of the decimal and sexagesimal systems is commended and amplified. The Hebrews like the Egyptians originally followed the decimal system; cf. the tithes of the Mosaic legislation, the dimensions of the tabernacle, and the report of the temple of Solomon, in the book of Chronicles. In this last, however, as in the (post-exilian?) description of Noah's ark and in the vision of Ezekiel, we see also the influence of the Babylonian system. But the 300, 60, 30 ells became decimal at once when transferred to their value in Hebrew roods. So the Babylonian measure of 360 ells becomes the Greek stade of 600 feet or 100 ὀργυιαί. So the superficial πλέθρον was 100 ft. square. The Greeks took from Babylon their geometry only as it pertained to astronomy.

92. pp. 593-637. An elaborate discussion of the *templa* of the augurs by P. Regell, intended to serve as a sort of supplement to Nissen's work on the *templum*. Much confusion has prevailed because the different *templa* were not distinguished. A comparison of the various statements of the ancients shows that while the augur turned to the south for the observation of the lightning, he generally turned towards the east to observe the flight of birds. In Livy I 18 (the inauguration of Numa) the clause *dexteris ad meridiem partes, laevas ad septentrionem esse dixit* [originally *dicat*] is thought to be an interpolation from an old marginal note. Livy would have used the technical *sinistras*, not *laevas*, and the *templum* in question is the whole heaven, thus for the observation of lightning and not of birds, as Romulus was declared king by lightning on the left. At the close of the article the Umbrian *templum* is discussed in opposition to the views both of Bréal and Kirchhoff. The discussion, which is accompanied by figures and full quotations from the monuments, cannot be condensed to a brief statement.

93. pp. 637-40. K. P. Schulze criticises Die Elegien des Tibullus erklärt von Fabricius. Berlin, 1881. The edition evidently is intended for *dilettanti* of whom the editor is one. He has followed Baehrens blindly in spite of all warnings and has allowed important works to escape him. Schulze in the main commends F. Leo's treatment of some elegies of Tibullus in Kiessling and Wilamowitz-Möllendorff's Philolog. Untersuchungen II. Leo endeavors to follow in the path opened by Vahlen (Berlin Acad. 1878). He is successful in his characterisation of the poet and in tracing the development of thought in the first six elegies of the first book.

94. pp. 641-50. R. Klusmann criticises Engelmann's Bibliotheca Script. Classicorum 8th ed. I, 1880. Philology had a right to demand more careful

revision of the work. The editor needs a more intimate than usual acquaintance with the history of Greek and Roman literature, combined with perfect familiarity with the *ὀνομαστικὸν* of philology and long years of training in the book trade. Thus Preuss, the editor of this revision, catalogues books which do not exist, does not distinguish properly between homonymous writers, and does not give with sufficient care the particulars, if an article has been republished.

95. pp. 650-52. C. Frick holds that *ὁ χωρογραφικὸς πίναξ*, Strabo II 5, 17, does not refer, as has been thought of late, to the map of the world which was prepared by Augustus. The article is generic, used to denote the whole class of maps. The adjective differs from *γεωγραφικός* only as including the details (*ποικίλματα*) of the situation of cities, nations, etc

(57.) pp. 652-55. A. Döring on Horace, Car. I 6. Kiessling, in *Philolog. Untersuch.* II, 1881, endeavors to save the generally condemned fourth strophe (*quis Martem tunica tectum adamantina, etc.*, cf. *κεκορυθμένος αἶθοπι χαλκῷ*) by assigning to these scenes from the Iliad a symbolical relation with the rest of the ode. Döring goes much farther. The strophe assumes Agrippa's perfect familiarity with the Iliad. He remembers who were put to flight by Diomed *οὔτε Πάλλadis*, Hom. E 330 fg., 850 fg. Ares and Aphrodite correspond to Antony and Cleopatra; thus a Homeric allusion is introduced which has a highly characteristic reference to the achievements of Octavian and Agrippa. In Meriones, Horace had in view Hom. N 298-305, where Idomeneus and Meriones are compared with Ares and his son Φόβος. With these now Octavian and Agrippa are compared.

In the last line of the ode, *non praeter solitum leves*, the negative belongs only to *praeter solitum* as a *litotes*, a strengthened *more solito*. The poet represents himself as a true Anacreontist.

X.

96. pp. 657-70. Fr. Susemihl on the date of the composition of the Phaedrus of Plato. In the *Jahrbücher*, 1880, pp. 707 fg. (see *Am. Journ. Phil.* II 531) he had examined Usener's arguments in support of the view that the Phaedrus was written 403 or 402 B. C. Since then Wilamowitz-Möllendorff had entered the field with a series of new arguments for this view. Wilamowitz says that the Phaedrus is the program of the Platonic dialogue, a new branch of literature, and thus it is hardly conceivable that other dialogues should have preceded it. But, says Susemihl, how can a composition be a program of the dialogue in which there is no express mention of the dialectic form for the presentation of thought, and which is not itself a pure dialogue, but in which three speeches are introduced? To regard this as a program of Plato's work as an author would be as one-sided as to regard it as a program of his work as teacher. It is at least by no means a program of the *Socratic* dialogue. In it Socrates is far from being a barren critic and intellectual midwife for other men's ideas. Krische held that the Phaedrus was composed during the lifetime of Socrates, and he strove to show that it presented a particularly faithful picture of the historic Socrates. Now the attempt is made to persuade us that the widest deviation from truth in its representation of Plato's master is the best argument for the early composition of the dialogue, even during his lifetime. But is it conceivable that years before Socrates's death, Plato, at the age

of twenty-four, from the standpoint of his own theory of ideas, should put on the mask of Socrates to announce to the world what and how he will teach, both in his writing and orally? The Phaedrus is indeed a program, but a program of Plato's metaphysics and logic, of his dialectics and theory of ideas.

97. pp. 670-72. W. H. Roscher recognizes the hero Adristas (Paus. VIII 4, 1) as named from the art of weaving and preparing wool which Arcas learned from him. (For such names cf. *Δαίτων*, *Μάρτων*, *Κεράων*, cooks and butlers in Lacedaemon.) The name is derived from *ἄριον* (Attic *ἤτριον*), which Curtius derives from the root *va*, 'weave.' *Ἀριστῆς* then would be 'weaver.' For the *δ* for *τ* before *ρ* cf. *Ἀρία* and *Ἀδρία*, *Ἀτραμύτιον* and *Ἀδραμύτιον*.

98. pp. 673-91. M. Müller offers linguistic and critical notes to Livy, Books XXIV-XXVI, a companion to his text edition in the Bibliotheca Teubneriana.

99. pp. 692-96. H. Rönisch on *coffinus* and *faenum*, Juvenal III 14, VI 542. In III 14, *quorum coffinus faenumque supellex* introduces the reader to the domestic life of the Jews who dwelt in the once sacred grove of Egeria. In VI the *Judaea tremens* is represented as she leaves this home for her business. (*Interpres legum Solymarum*, as the teacher of the Mosaic law to the Roman women who were proselytes; *magna sacerdos arboris*, mockingly, in contrast with the *magnus sacerdos templi* of Jerusalem, since she dwelt in the grove; *summa fida internuntia caeli*, probably as held in higher esteem as prophets than the augurs.) The basket and hay were characteristic of the Jews as Jews, and the correct explanation is preserved in an old scholion to VI 542, according to which the basket was for the keeping warm of cooked food and hot water for the Sabbath. The hay served to protect it and keep in the heat. The rabbinical strictness in the observation of the Sabbath and the rules for the keeping of food warm are well known.

100. pp. 697-706. J. Beloch discusses the arrangement of the history of Timaeus. The work was divided into books by the author, and the number of books can be determined approximately. The history of Agathocles, covering 28 years, was narrated in five books, but this was the story of his own time, in which he naturally would be most interested and of which he would write with the most details. The century from the Athenian expedition cannot then have filled more than 15 or 20 books. It is known that he described the Attic war in his thirteenth book, so twelve books remain for the earliest history of the West. Thus to the death of Agathocles we get a general estimate of 35 to 40 books which agrees well with our citations, which go to book 38. The fragments are discussed and the conclusion reached that we can form a pretty satisfactory conception of the plan of the first half of the work, but from the seventeenth book to the end we have only six citations with the number of the book added. The following scheme is proposed for the work: I, till the capture of Troy 1334; II to Ol. I, 776; III-VI, Greek colonization of the West, to about Ol. L, 580; VII-IX, history of the West, to the time of Gelo, about Ol. L-LXX, 580-500; X, to the battle of Himera, Ol. LXX-LXXIV, 500-480; XI, to the overthrow of the Deinomenids, Ol. LXXV-LXXVII, 480-468; XII, the democracy to the Attic war, Ol. LXXVIII-LXXXVII, 468-428; XIII, Attic war, Ol. LXXXVIII-XCI, 428-412; XIV, first war with Carthage, Ol.

XCII, 412-408; XV, siege of Acragas, Ol. XCIII 1-2, 408-406; XVI-XXIV, Dionysius I and II, Ol. XCIII 3-CV, 405-356; XXV-XXVII, anarchy, Ol. CVI-CVIII, 356-344; XXVIII-XXX, Timoleon, Ol. CIX-CX, 344-336; XXXI-XXXIII, Oligarchy, Ol. CXI-CXIV, 336-320; XXXIV-XXXVIII, Agathocles, Ol. CXV-CXXII, 320-289; Appendix, Ol. CXXIII-CXXVIII, 288-264.

101. pp. 707-20. H. Peter commends warmly Ribbeck's life of Ritschl.

XI.

102. pp. 721-31. M. Wohlrab defends himself against the charge brought by Schanz of critical incompetence in the treatment of the text of Plato.

103. pp. 732-39. Emendations to the text of Plato's Laws by K. J. Liebholt.

104. pp. 739-40. F. Blass queries whether we have a work by Simmias of Thebes in an anonymous treatise published by Stephanus in an appendix to his Diogenes Laertius (by Mullach, Frag. Phil. I 544) under the title 'Ἀνωνύμου τινὸς διαλέξεις Δορικῇ διαλέκτῳ. A reference to the disaster of Aigospotami as recent proves the date of the composition. From one passage the name of the author has been thought to be Μίμας. The treatise is identified by Blass with Nos. 5-11 of the works of Simmias as enumerated by Suidas.

105. pp. 741-48. E. Rohde, "Leucippus and Democritus once more." He inquires how it happened that Leucippus, who, according to Aristotle and Theophrastus, had developed the complete atomic theory, is not mentioned by Lucretius or Sextus Empiricus, or indeed by any one outside the circle of Aristotle and Theophrastus, while all the praise is heaped on the head of Democritus. It is unexampled in the history of Greek philosophy that the inventor of an original theory and founder of a school based thereon should have left no traces in the memory of his own school, and that Epicurus could deny that he had ever existed. Rohde thinks that certain works which were ascribed to Leucippus in the time of Aristotle were afterwards assigned to Democritus.

106. pp. 748-52. Critical notes by O. Schmidt on Xenophon's Hiero, II and VII.

107. p. 752. H. Röhl, in Kaibel, Epigr. Graeca 706 (Welcker, Syll. p. 91), would read, not Κύδωνος πλεσιόν, but κύδωνος (= κυδανίον μέλου) πλεσιόν.

108. pp. 753-63. H. Schweizer-Sidler praises Havet, de Saturnio Latinorum versu, Paris, 1880. "The book as a whole is so important, shows so much learning, thoroughness and acumen, is so instructive for the old Latin language and poetry, that slight criticisms upon it are not becoming."

(42.) pp. 763-65. Conjectural emendations by M. Hertz to Seneca rhetor, Apuleius, Fl. Vopiscus, Ammianus Marcellinus.

(57.) pp. 766-68. E. Hoffmann on Horace, Car. II 1, 4 fg. and 21, *uncta cruoribus* he considers unlatin (we should expect *uncta cruore*) and would read *functa cruoribus*. In v. 21 he would read *audere . . . video* for *audire . . . video*.

109. pp. 769-83. J. Woltjer, *de archetypo quodam codice Lucretiano*. After an examination of the six books he comes to the conclusion "fuisse olim codicem, cuius paginae ternos denos versus continerent, hunc codicem parum accurate transcriptum fuisse, multis locis schedarum supremas et infimas partes

mutilatas et corruptas fuisse, vix ut legi possent, singulos autem versus dimidiatos fuisse, in binis lineis ut scripti essent, haud inepte contendere posse videtur, huic exemplari lector quidam et Lucretii arte et Epicuri philosophia satis imbutus suas adnotationes inseruit, versibus quibusdam comparationis causa alios adscripsit, aut ut poetam sibi ipsum contra dicere ostenderet, atque singulorum locorum argumenta paucis verbis, interdum ex Epicuro sumptis, expressa in margine adnotavit, qui codex cum deinde transcriberetur ab homine rudi et imperito, fieri non potuit quin multi versus e margine in contextum irrepererent et saepius in fine paginae adderentur."

110. pp. 783-84. K. Dziatzko, vs. 648, 649 of the Hecyra of Terence belong after 654.

111. pp. 785-801. E. Zarncke, on the so-called *vocabula Graecanica* in the titles of the odes of Horace; a supplement to his dissertation on the same subject (Strasburg, 1880), in which he had discussed these headings as found in the MSS. Here he treats of them as found in the old editions and finds his former conclusion confirmed, that they had been thrown overboard rightly, as useless pedantry of the schools of the rhetoricians.

112. pp. 802-04. J. H. Schmalz "notices" Theilmann über Sprache und Kritik des lateinischen Apolloniusromanes, 1881.

113. pp. 805-07. K. Welzhofer holds that the MS of Pliny which was bought by Cosimo de' Medici was not of the younger Pliny, as conjectured by Voigt, but was of the elder Pliny's works, probably cod. L.

(83.) pp. 807-08. Miscellaneous conjectures to Latin authors by K. E. Georges.

114. p. 808. W. H. Roscher reads *nactus* for *factus*, Vell. Paternulus II 17, 3.

XII.

115. pp. 809-15. H. Stadtmüller. Conjectural emendations to the Homeric Hymns.

116. pp. 815-16. C. Cron on Plato's Gorgias corrects a view which Hertz had expressed and shows that in 521e the expression *ὅνπερ πρὸς Πῶλον ἔλεγον* is exact, since 463 fg. Socrates is continually aiming at Polus although in conversation with Gorgias.

117. pp. 817-23. H. Flach denies the Indogermanic origin of the Prometheus myth, asserts that it sprang up on Greek soil, and that the original meaning of the myth is made certain by the etymology of the Titan's name, which cannot be separated from *προμηθεῖα*, *προμηθής*, etc., and must be identified with *Πρόνοος*, whom the scholion on Thuc. I 3 names as the son of Deucalion. But in spite of the indications of Aesch. Prom. 85, 381, Pindar Ol. VII 44, Arist. Birds 1511, we are expected to swallow Kuhn's theory whole. Perhaps in this myth two originally distinct versions, one from Peloponnesus, the other from Lemnos, have become mingled. The connection of the Heracles myth with that of Prometheus is of subordinate importance. It is conjectured that at the bottom of the Prometheus story was the worship of a Pelasgian divinity whom the Greeks identified with various local heroes, as *Φορωνεύς* (perhaps the fire-thief), *Πρόνοος*, *Προμηθεύς*. The Aeschylean Prometheus as son of *Γαῖα* is *αὐτόχθων*, just as the Argive Phoroneus according to Acusilaus was the first man,

and the Lemnian Prometheus through his marriage with Hesione (Ἑσιόη) was conceived as the progenitor of the human race just as Phoroneus at Argos.

118. pp. 823-24. An amphora in the Berlin Museum is declared by K. Wieseler to represent Heracles to the Greeks as a Scytho-Germanic god. Heracles, according to his view, was not Phoenician, but a German war and sun god; he went to Greece and there was changed into a hero. The name Heracles and the words on the vase are explained by the writer from the German.

119. pp. 825-31. F. Kern, Critical and exegetical notes to Soph. Ant. 392, 601, 1061 fg.

120. pp. 831-32. A. Lowinski. Conjectural emendations to Aesch. Sept. 10-13, to read ἑμᾶς δὲ χρὴ νῦν, καὶ τὸν ἐλλείποντά τι | ἥβης ἀκμαίας, καὶ τὸν ἐξηβόν χρόνῳ | βλάστημ' ἐτ' ἀλδαίνοντα σώματος πολύν, | ὦραν τ' ἐχονθ' ἑκάστον, ὥσπερ οὖν πρέπει κτλ.

121. pp. 833-38. H. Rumpf finds a remarkable example of the digamma on an inscription from the first century B. C., which was found near Sebastopol in the Chersonese Heracleia, and first published in 1880. τὰ ἐνοῖνα is found in the sense of τὰ ἐνσπονδα, *vini libatione sancita*. Over the *o* stands *v* which cannot be taken as a correction for *oi*, since no trace of *v* for *oi* nor of *ov* for *v* is found in the inscription. That *v* was used sometimes as a representative of the digamma is shown by Curtius, Gzge. 564 fg., and it is to be remembered that peculiarities of this kind would be retained longer in the formulae of sacrifices than elsewhere.

122. pp. 839-40. W. H. Roscher in Caesar, Bell. civ. III 109, 5, would read *quorum alter accepto vulnere torpore (or rigore) occupatus per suos pro occiso sublatu, alter interfectus est*.

123. pp. 841-49. O. Wichmann justifies his view of Schwarz's work on the Demonax of Lucian, which was criticised in this volume of the Jahrbücher pp. 327 fg. by Ziegler, who disputed the disordered state of the Demonax. Wichmann endeavors to prove interpolations and other evidences of revision.

124. pp. 850-56. J. G. Cuno. Etruscan Studies: Tarquinius Priscus, Servius Tullius, Tanaquil. The original story probably brought Tarquinius into connection with Corythus, a country, not the city Cortona as is often supposed. Corythus is the country which was promised to Aeneas. See Verg. Aen. IX 10, X 719. From Corythus to Corinth was but a step, and thence arose the story that Tarquin's father was a Corinthian exile. *Priscus* must be the Latin translation of the Etruscan *Lucumo* (cf. Livy I 34) which meant *rex*. He is not 'the old' in contrast with L. Tarquinius Superbus; he would be *maior* in that relation. In Livy I 32, the *prisci Latini* are the citizens of Latium with full rights, corresponding to the *populus Romanus Quiritium*. So also Servius (Tullus) has nothing to do with *servus*, but is a translation of the Etruscan *Mastarna*, a modification of the Latin *magister* with the suffix *-na*, which is very frequent in Etruscan. From Fabretti's Corpus Inscript. Corsen cites *macstre*, identical with *magister*. So Tanaquil is said to have received in Rome another name, Caecilia. But this is only a translation of her other name. It is concluded that the myths pertaining to these three persons were brought to Roman soil by Etruscan conquerors and colonists, and were adopted there as so much else of the Etruscan civilization was adopted.

(18.) pp. 857-67. F. Hankel, the ancient Roman camp according to Polybius, a reply to Nissen's article, pp. 129 fg. of this volume of the *Jahrbücher*.

125. pp. 868-70. Ph. Thielmann commends Heerdegen's *Untersuchungen zur lateinischen Semasiologie*, speaking in detail of the use of *orare*.

T. D. SEYMOUR,

WEISKE ON THE ARTICULAR INFINITIVE.

The pedagogical section of the *Jahrbücher*, which is edited by Professor Masius, does not fall within the scheme of these reports, although the articles are often of considerable interest, both theoretical and practical. In the volume for 1882 (pp. 494-504, 529-42) Dr. G. A. Weiske, of Halle, has undertaken to collect and arrange according to the categories of Koch's grammar, the articular infinitives occurring in Plato, Thukydides, Xenophon and the Attic orators. He has not gone into the matter of proportion as I have done, so that his paper does not serve to correct the results reached by my pupils and myself. See *Transactions of the American Philological Association*, 1878, and *Am. Journ. of Phil.* III, 193-202. Nor has he noticed the occurrence of such rarities as the fut. articular inf. and the articular inf. with *άν*. The nominative infinitive he considers to have little grammatical interest, a point in which many will not agree with him, as the transition of the inf. from dat. to acc. and from acc. to nominative deserves the most careful study, and would have been furthered by a complete list. It is doubtless true, as Dr. Weiske says, that the development of the articular infinitive checked the development of the abstract substantive in Greek, but we must remember that abstract substantive and infinitive do not cover each other, and when we look over the complete list that Dr. Weiske gives of the articular accusative infinitives, we find that a very small percentage of the verbs cited have not a corresponding abstract substantive.

Of the advantages which the infinitive has over the abstract subst. I have written already, and I will not repeat here what is tolerably evident to any one who thinks on the subject. Dr. Weiske speaks of the 'leichtigkeit des satzbaues' attained by the use of the articular infinitive. If he means by 'leichtigkeit' 'compactness' I should agree with him, but I have shown sufficiently that the articular infinitive is really a norm of artificiality and that an excessive use of it toughens the style.¹ On the chapter of the use of the abstract substantive and the articular infinitive in combination, Dr. Weiske has touched but lightly. He says the articular inf. is often combined by means of *καί* with a preceding substantive in the same case, the infin. giving the narrower, the subst. the wider sense. This, he says, is especially common in Demosthenes. So 8, 12: *τὴν μὲν ἐχθρὰν καὶ τὸ βούλεσθαι κωλύειν*; 18, 296: *τὴν δ' ἐλευθερίαν καὶ μηδένα ἔχειν δεσπότην αὐτῶν*; 20, 45: *τὴν προθυμίαν καὶ τὸ αὐτὸν ἐπαγγεῖλάμενον ποιεῖν*; 57, 2: *τὸν καιρὸν δὲ καὶ τὸ παρωξύνθαι τὴν πόλιν πρὸς τὰς ἀπονηρήσεις*. He might have added that this is in exact conformity with Demosthenes' way of working out a problem before his audience, who are

¹ Dionysios makes a similar remark about the excessive use of the gen. absol. in Isaios (*De Isae. Iud.* p. 598).

made to sympathize with him as he feels his way to a just expression. The references are arranged without any regard to period or department or author, and the whole mass would need to be worked over again to get an historical result.

According to Dr. Weiske the school grammar should enter under the accusative the constructions with *ποιεῖν*, *φύγειν*, *φυλάττεσθαι*, *φοβεῖσθαι*, *καλεῖν*, *νομίζειν*, and the accusative of reference 'as to'; under the genitive the complementary use with such words as *ἀδυναμία*, *ἄδεια*, *ἀπειρία*, *δόξα*, *δύναμις*, *ἐθισμός*, *ἐξουσία*, *ἐπιθυμία*, *ἔρως*, *καιρός*, *παράδειγμα*, *πρόφασις*, *σημεῖον*, *τεκμήριον*, *φόβος* and *χρόνος*; among the verbs frequently combined with the gen. of the art. inf. *αἰτιάσθαι*,—*ἐπιμελεῖσθαι*, *ἀμελεῖν*—*μετέχειν*—*ἐπιθυμεῖν*—*ἀποστερεῖν*, *ἀπέχειν*, *ἀπαλλάττειν*, *ἀφίστασθαι*; among the adjectives *αἰτιος*, *κύριος*, *ἄξιος*. He is right when he says that the gen. of comparison occurs frequently in the articular infinitive, but I must demur to the recommendation of the gen. absol. which is a comparatively rare construction, for reasons given, *Am. Jour. Phil.* III 198. The examples adduced are *Thuk.* 3, 2, 3; *Lys.* 12, 13; *Isokr.* 3, 6; 6, 3; *Xen. Mem.* 2, 1, 8; *Plat. Euthydem.* 285 E, *Gorg.* 509 E; *Polit.* 310 E; *Kriton* 49 D; *Charm.* 164 E; *Dem.* 5, 2; 20, 25; 23, 13; 25, 17; 61, 28. Against these we must pit the large number of acc. participles with the simple infinitive, which is the normal construction. The dative art. inf. is far less common than the genitive for the best of reasons (see *Am. Journ. of Phil.* III 201). The inf. is a dative still. The most important use is the dative of cause. Dr. Weiske also emphasises the combination with *ἐναντίος*, *διαφέρειν*, *χρῆσθαι*.

The chapter on prepositions with the articular infinitive is not without its interest. Of course the plastic uses of the prepositions are excluded. There is no *ἀνά* (which is scarce enough, in prose, as it is), no *κατά* with the gen., no *ἀμφί* (which has little scope in prose), no *ὑπέρ* with acc., no *περί* with dat. (which is closely limited at any rate), no *παρά* with gen. or dat.; *παρά* with acc. is rare. *Σύν*, which we have learned to exclude practically from model Attic prose, is cited with dat. by W. from *Dem.* 8, 65: *μὴ σὺν ἐν πεπονθότων τῶν πολλῶν Ὀλυνθίων τῷ Ποτίδαιαν καρποῦσθαι*, but *σὺν ἐν πεπονθότων* is a rude quasi-compound (like *ἀντ' ἐν ποιεῖν*) and the dative depends on the totality.

B. L. G.

CORRESPONDENCE.

Sir: I ask a little space for reply to some of the criticisms in a review of my translation of "Beowulf" contained in No. 13 of your Journal. For the generally favorable opinion expressed and for some of the bibliographical references I am much obliged, but, without going into details, I may say that I do not think it necessary to include in the bibliography of a work every book that in any way makes reference to it. As to the difficulties of Anglo-Saxon inversion for the general reader, they are sufficiently commented on in my preface, and as to the *Unwörter* charged, none are specified, and I do not think that any words used would be unintelligible to the general reader except the dozen or so for which a glossary is given.

The reviewer would seem to require that a line-for-line translation, which tries to preserve two accents to the half-line, should follow the principle of the Revisers of 1611 rather than that of the Revisers of 1881, as he objects to "the perpetual recurrence of such words as 'victorious,' 'jewel,' 'treasure,'" and thinks "a subtler insight would have perceived picturesque shades of meaning." When it is recollected that of *sige* and *sigor* = "victory," there are over a dozen compounds, of *sinc* = "jewel" or "treasure," at least six, of *māðum* = "jewel" no less than fourteen, and of *hord* = "treasure," about twelve, besides the "perpetual recurrence" of these words by themselves, I think the "subtler insight" would have been overburdened, and it were better to decline the attempt to find "picturesque shades of meaning."

I cannot notice each one of the *thirty-five* references in which, for one reason or another, exception is taken, and in some of which I concede that the correction is more exact than the word or phrase used; but many of them touch very small points, often silently passed over in Heyne's translation (which, being in ten-syllable iambic measure, is much freer), some are due to the failure to use Grein's text, the one translated, in the comparison instead of Heyne's, and others are inadmissible.

Some examples of each of these will be given: (1) Exception is taken to the omission of the particle *hāru* in 182 and 369. This important word = *saltem*, *quidem*, *certe*, *γέ*, and is omitted entirely by Heyne in both passages. I find that I have translated it "now," "indeed," in *seven* other passages, but while my translation professes to be line-for-line, it does not profess to be word-for-word, and I should not have considered it much of a blemish if I had omitted it in all of them. In one of these, 862, where I have "now," the reviewer corrects to "nevertheless," Heyne's glossary giving *doch*, *jedoch* for this reference. Let us substitute it and read the line:

"They did not *nevertheless* at all their dear lord blame" (!)

Surely some license in particles may be allowed to even a line-for-line translator.

Again, as to the "neglect . . . of the duals" in 1707 and 1783. I forbear to quote the lines, but would simply ask, is it necessary to inform the general reader that the original has *wit* = "we two" in the one, and *unc* = "us two" in the other, of these "important passages," where two persons are conversing? Also, in 1861 *ganot* certainly = "gannet." The word is omitted in Grein's glossary, and given by Heyne as "Taucher, fulica marina" in glossary, and his translation has "über des Tauchers Bad." Now *fulica* = coot (Andrews), and "gannet" = "the Solan goose" (Webster),—whatever aquatic fowl that may be—so that I should have had authority for "coot," or "goose," or simply "diver" instead of "swan," but my sole attempt at "picturesqueness" has come to grief. Moreover, under *ganet*, Toller-Bosworth gives "*swan*, cygnus," as one of the meanings. It is, perhaps, needless to remark that the translation is not designed to teach ornithological distinctions, or the existence of a dual in Anglo-Saxon, or extreme accuracy in the use of particles under all circumstances. There are more of the same sort, but these examples must suffice.

(2) A more serious charge is that "Ll. 2522-23 and 3117 take a liberty with the text." The reviewer should have examined Grein's text, or even Heyne's *third* edition, before making this charge. Grein reads *orðes and áttres*, 2523, which I have translated; Heyne, *rêðes and-háttres* (Holder prints *rêðes and hat-tres*, using the common symbol for *and*), and his *third* edition gives a full note on the passage, which is omitted in his *fourth* edition. I have inadvertently omitted to give a note here, but I think this is the only passage where the *texts* vary and the note is omitted out of more than one hundred and fifty such variations. There are a few other passages noted below where the words of the text are the same, but the explanations of the editors are different, and I have omitted to give notes on these passages. In 3117 the reviewer has, doubtless, been misled by Heyne's rendering of *strengum*, "violenter, mit Macht," under *strengo*, whereas Heyne himself gives the correct translation, "von den Sehnen," under *gebâdan*. A glance at Toller-Bosworth, s. v. *gebâdan*, would have helped here. In the four passages following, if the reviewer had examined Grein's glossary, the suggested corrections would have been unnecessary: in 1616 Heyne has *broden mæl*, and in glossary "das gezogene Schwert," "die gezückte Waffe," but in translation "die hartgeschmiedete"; Grein has *brodenmæl* = "mit geschwungenen gewundenen Zeichen versehenes, damascirtes Schwert, vgl. *wundenmæl*," hence "damaskeened" would have been exact, if rhythm had permitted; "twisted" is too free, and "etched" should have been used, as for *wundenmæl* in 1531, but not "drawn," according to Grein.

Again, in 2029 Grein takes *selda* = "Höfing," and *seldan* here as acc. pl. (I use "courtier" generically), not as adverb with Heyne; also *léodhryre*, 2030 and 2391, = "Fall der Leute," not, as Heyne, "Fall des Fürsten," but I have a note on this word. This is one of the most difficult passages in "Beowulf" criticism and cannot be settled dogmatically. Thorpe, who suggests *pléh* for *of*, says: "Ignorance of the events and the defective state of the MS render interpretation little else than guesswork," but the MS shows no lacuna here (cf. Holder, p. 46, 174b, l. 9), and there is no authority for Heyne's insertion of *no*.¹ The reviewer says: "In our opinion *oft* here belongs to *gesette*." This will

¹ Wülcker, however, in his new edition of Grein's Bibliothek, thinks *no* might have stood in the MS and so reads in his restored text, but Holder shows no trace of such omission.

not answer. How could Hrothgar, by betrothing his daughter Fréaware to Ingeld, Froda's son, *often* appease quarrels? Also, under *bágan* Grein gives here "sich zu einem wenden, ihn ereilen," referring to the spear as subject, and not "er ruht," as Heyne. But enough for one passage. In 2576 for *gryre-fáhne* Grein gives "grauenvoll feindlich," and I have rendered it simply "fearful foe"; Heyne gives "grauenvoll glänzend," and the reviewer has turned it into the "picturesque" "grisly-hued," a blending of Thorpe's "grisly variegated" and Arnold's "terrible many-hued." Toller-Bosworth has "terribly hostile, or terrible in its variegated coloring," with this as the only reference; the reader can take his choice. In 2640, *onmunde ásic maerða*, Grein takes *onmunan* = "einen womit bedenken," "einem etwas zudenken"; Heyne gives "ermahnte uns zu Ruhmesthaten," which the reviewer has literally translated, correcting my adoption of Grein's explanation, as I was translating Grein's text. Although there is no variation of text in these four passages, I might have added notes giving Heyne's explanation also, but the omission to do so does not excuse the reviewer's neglect to note Grein's explanations. There are two other references, 1793 and 1980, which I must pass by.

(3) Among inadmissible renderings the following may be noted: in 498 for *duguð*, which I have translated "band," the reviewer gives "joy," and refers to "Toller-Bosworth, 218, for numerous references, though this one is omitted," and well it might be, for there is no ground whatever for translating *duguð*, "joy" (the meaning of *dream* in 497), nor is any such meaning given in T.-B. 218. The word "joy" *does not occur* in the renderings. The nearest approach to it is under IV. "prosperity, riches, blessings," "prosperitas, divitiæ, opes," and among the "numerous references" the only example containing the word "joys" is as follows: *Eallum biðæled dugubum and dredmum*, "deprived of all blessings and joys," where *dredmum* = "joys," and *dugubum*, "blessings," a meaning totally out of place in "Beowulf," 498, where Danes and Weders are having a grand carouse. If we look to authorities, the result is the same: both Grein and Heyne give "Kriegerschaar, Gefolge, vorzüglich edle Kriegerschaar," citing this passage, and the latter under *unlytel*, "eine sehr grosze Ritterschaar." Thorpe translates *duguð unlytel*, "no few nobles," and Arnold "a great gathering of noble knights." But it is useless to heap up authorities; "joy" will not answer, nor does T.-B. give any support to it.

So 1191, *be þæm gebrōðrum twām*, the reviewer gives "'twixt" for "by." For *be* Grein and Heyne give "bei, an, neben," quoting this passage; T.-B., "by, near to, etc., juxta, prope, etc.," Thorpe, "by the two brethren"; Arnold, "beside the two brethren." For the view that Beowulf sat "'twixt the two brethren," there is no ground but in the reviewer's imagination.

In 1943 "leman" certainly = *lofne mannan*, etymologically, and the writer of "King Horn" might well have put it here, but however worthy its older associations, "subtler insight" might have suggested an avoidance of it in modern English (cf. Webster, s. v.). Thorpe gives "a dear man"; Arnold, "her dear husband."

In 2577 the reviewer again touches a *crux*, but disposes of it very summarily.

¹ For the "bad sense" of "leman" already in Chaucer's time, see Manciple's Tale, 18086 (Gilman), *et seq.*:

"Hir lemman? certes this is a knavyssh speche!"

This is the only passage in which I follow Heyne's explanation in text and relegate Grein's to the notes. Heyne has in glossary "*incge lāfe*, mit dem kostbaren Schwerte? oder mit wuchtigem Schwerte?" and in his translation "mit dem wuchtigen Stahl," hence "weighty" would have been better than "mighty." Grein follows Thorpe in taking *incge* as a proper name = Ing, King of the Danes, but then we must read *Incge[s]* with Thorpe, who says: "My interpretation is quite conjectural, the word *incge* being unknown to me," and he translates "with Inge's relic." Arnold, too, follows Thorpe, translating "with the Dane's (?) bequest," but says: "No one has suggested an explanation for *incge*." The reviewer suggests "with the *edge* of the sword," to which translation there would be no objection *if* there was any authority for the reading, but the scribe uses *ecg* in the same line and might easily have written *ecge* here, if that were the reading, and Holder gives plainly *inc ge lafe* (p. 59, 187a, l. 11), so that *ecge* must be rejected, and *incge* still awaits a satisfactory explanation. T.-B. has not yet reached the word. Heyne suggests a connection with *icge gold*, 1107, = "Schatzgold, reiches Gold?" but that word is equally as unknown. Wackerbarth translates "And with his mighty Relic Brand." Ettmüller follows Thorpe and Grein.¹

To shorten this reply, I notice lastly only 2820, *dōm* = "doom," which translation might be "ambiguous" if the context did not show plainly what was meant, but it is certainly literal. It means here, of course, "heavenly glory." "Herlichkeit" (Grein and Heyne), "doom of the just" (Thorpe), "doom of the soothfast" (Arnold), but it does *not* mean "realm," nor will any support for this rendering be found in T.-B., q. v., s. v. III, p. 207, where "numerous references" for *dōm* = "glory" may be found.

I am obliged for some of the references, as they will enable me to supply further notes, but I am glad that the philological microscope, even when of strong magnifying power, has been able to detect so few "inaccuracies."

JAMES M. GARNETT.

¹ If the lists are still open, I would suggest *sinc-gelāfe* (cf. *māððum-sweord*, 1023), alliterating with *sio*, which alliteration, although rare, is still admissible; *s* at beginning of the MS line might have been dropped as readily as after *ge* within the line. The facsimile of the Beowulf MS., just published by the Early English Text Society, reads *incgelafe*, apparently as one word. Thorkelin printed *Inc gelafe*, but misinterpreted the passage; Grundtvig, *incgelafe*, but suggests *Ingwina lāfe*? Kemble says in glossary, s. v. *lāf*, "*incge-lāf*, ensis. I cannot explain the first word, and believe it to be a corruption of *icge-lāf*," and he gives "*icge*? *vegetus*, *magnus*, *eximius*," with 1107 as the sole reference. The conjecture has, at least, the merit of being perfectly intelligible.

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